

The New Curative TREATMENT OF DISEASE BY M. PLATEN



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PLATEN,
The New Curative Treatment
of Disease.

II.

THE
New Curative Treatment
of Disease.

HANDBOOK

Of Hygienic Rules of Life, Health Culture, and the Cure
of Ailments without the aid of Drugs,

An Invaluable Household and Family Guide
for the Healthy and the Ailing,

BY

M. PLATEN,

Lecturer on, and Practitioner of the New Curative Treatment.

WITH 432 ILLUSTRATIONS IN THE TEXT, SEVENTEEN COLOURED PLATES, A
PORTRAIT OF THE AUTHOR, AND SUPER-IMPOSED ANATOMICAL PLATES.

— ° VOLUME II. ° —

BONG & CO., London.

602870

Third (alphabetical) Part.

Diseases and their Treatment.

"Art is long, life is short, decision difficult, opportunities flitting."

"To act is easy, to think, difficult; to act upon the suggested, convenient."

Hippocrates.

"If it were possible to restore the sick to health in several ways, we should choose the least difficult."

Hippocrates.

A.

Abdominal Inflammation. (See "Inflammation of the Peritoneum" [peritonitis]).

Abdominal Plethora (an excessive fulness of the blood-vessels of the abdomen). (See "Hemorrhoids" [Piles]).

Abdominal Rupture. (See "Rupture, Intestinal Rupture" [Hernia]).

Abdominal Typhus. (See "Typhus.")

Ablutions. (See Index.)

Ablution of the Whole Body. (See Index.)

Abnormalities are changes which have taken place in the healthy human organism, in respect to the usual structural system of its substance, or in the functions or situation of individual organs; or it may be in respect to diseased human organism, the usual result or nature of a disease making its appearance, also any conditions which are different to the usual natural course.

Abortion. (See "Miscarriage.")

Abscess. (See "Pus-boil.")

Abscess, Ulcer. — An abscess, unlike a tumour, is an open place on any part of the surface of the body. The causes lie either in local injuries or in a defective blending of blood and (other) juices. But generally both circumstances unite in the development of an abscess. In an abscess we distinguish between the body or centre and the sides or edges. The secretions are of different kinds, and upon them depend the benign or malignant character of the abscess. The discharge may consist of good or bad, of a thin, watery, or thick slimy, clammy, white, green, yellowish green, yellow, or bloody, variegated, foul, offensive matter. Benign abscesses heal when the discharge ceases, the cavity or centre and sides close, and are covered with new skin, but a scar is generally left. A malignant abscess, on the contrary, gives

no sign of healing, but rather inclines to get worse, and, if aggravated, to mortify.

The treatment is the same as for ulcer. (See further, under headings "Mortification," "Inflammation," and "Wounds.")

Accidents, and what to do when they happen.

— When a person who cannot swim falls into the water, he may be saved if he employs either of these three means: Firstly, he should not raise his arms out of the water; secondly, he should breathe deeply, and let out the respired air with short exhalations, because, by doing this, he will keep the lungs full of air; and, thirdly, he should remain floating with his back on the surface of the water, being careful to keep his mouth upwards. This, however, is more easily said than done. As a rule, a person who cannot swim becomes confused on falling into the water, and makes all kinds of frantic contortions, which render the saving of his life by another person almost impossible; the drowning person frequently clings to him in a frantic manner, and thus often draws him down into the deep.

I will give here some valuable particulars given by the renowned swimming master, Mr. Hans Müller, of Hamburg, who has already saved over two hundred lives from drowning. He says: "While calling to the drowning man that he is saved, approach him as quickly as possible from the back, and then seize him by the right wrist (which should be done with the right hand), and at the same time put one's left arm under his (from the back), so as to be able to hold him tightly against one's self, and swim (with the back on the surface of the water) to the shore." If these instructions are carried out, the drowning man cannot cling to the one who is saving him. In a case where this has happened, the rescuer must immediately dive down, and when the person (who still struggles to get up again) has let go, he should try to catch hold of him properly. If the accident occurs in water where there is a current, the rescuer should first run up the stream, and then jump in beyond the spot where the drowning person is, so as not to tire himself unnecessarily by swimming against the stream, and, for the same reason, he should swim to the shore down the stream, and in a slanting direction. When some one has gone down, the place where the body is may be found by the bubbles on the surface of the water, which arise now and then after the body has gone down; this, however, only applies to water with a very slow current. In this

manner one can sometimes take the body out of the water before it is too late for restoring animation. In diving for a body, seize it with one hand, and use the other, as well as the feet, to regain the surface of the water. It is a mistake,

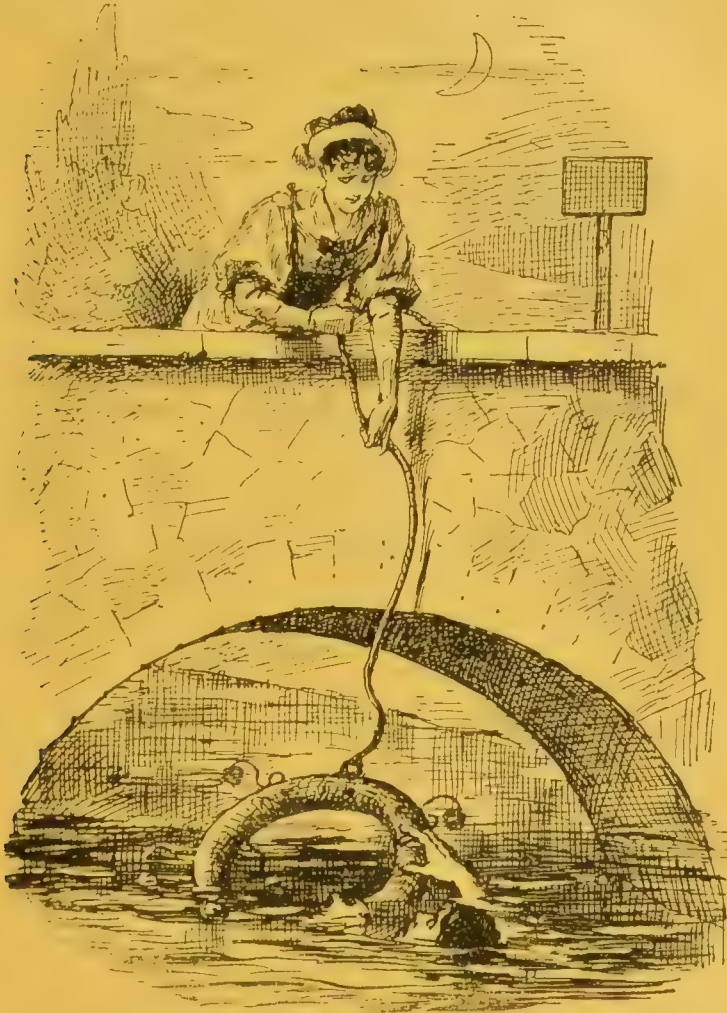


Fig. 269. The saving of a drowning man's life with the help of a life-belt.

when one is in the sea, to swim against the current towards the land; it is much better to float on the back (this is best in any case, whether one holds a body or not). One should float with the current till help comes, for many a man has exhausted all his strength while swimming towards the land, against the current, and finally sank down and been drowned;

while if he had floated, a boat or some other help could have been procured for him.

When a person falls into the water, and there is no one in the vicinity who is able to swim, and who could thus save him, throw something to him (such as a rope, oar, etc.), and if there is nothing at hand, do not lose time, take off your coat and throw a sleeve of it, or other part of it, to the drowning person. Life belts, life buoys, etc., are very useful (Fig. 269), which are often the means of saving life, as they can easily and safely be thrown to a drowning person by



Fig. 270. The saving of a man under whom the ice has broken.

anyone, and such things should always be kept, for the "Protection of the Public," on bridges where there is much traffic, at places where boats anchor, etc.

In winter, when the rivers, lakes, etc., are frozen, a great many accidents occur, through the ice breaking whilst people are skating on it. Besides this, other accidents happen, among which may be mentioned a fracture of a bone, a sprain, a dislocation, most of the latter accidents being caused by a fall whilst skating. A person under whose feet thin ice has broken is quite unable to get out again by himself, for whenever he clutches the ice to pull himself up, the edges break off. If there is a long pole, a ladder, or a board at hand, it should be pushed out to him; but in case one wishes

to help him without one of these, creep carefully towards him, "on all fours," or else approach him while holding a long pole across the back under the arms, walking erectly all the time. (Fig. 270.) In many places where people skate, a kind of skittle-ball, to which an iron ring has been attached, is now kept. The skittle-ball has a cord attached to it, and may be rolled out to the person in the water, who will thus be able to keep himself above the ice till help comes (Fig. 271). (Comp. also the article, "Drowned Persons, and



Fig. 271. The saving of a man under whom the ice has broken, by means of the "skittle-ball apparatus."

the Treatment of the same;" and also the three single articles concerning the treatment of "Frost Injuries," "Hanging," and "Suffocation.")

Accident, how to Convey People who have had an.—Space does not permit of my giving all the details of the apparatus that is needed, both in peace and in war, for the transport of the injured or wounded. The most important part concerning this matter has already been mentioned by me in the article "Bones, Fractured" and has been made vivid by illustrations. But when persons who have had an accident are carried away, it is not always a case of fractured bones, but it is in many cases a question of dealing with persons who are wounded, unconscious, or exhausted through loss of blood, etc., and who are not able to walk unassisted, or sometimes not able to walk at all. If there is no ambulance



Fig. 272. Conveying an injured person, with the help of one assistant.



Fig. 273. Two assistants carrying away an unconscious person.

(Fig. 332), nor an improvised ambulance (Fig. 335) to be obtained, and the place where the injured person is about to be taken is not far distant, he may be able to walk there, if someone will help him there, in the manner represented on Fig. 272. The injured person will put one arm round the neck of his assistant, so that his hand hangs down the opposite shoulder of the latter. The assistant then puts one arm round the waist of the injured person, and with his other hand he holds the latter's hand (which is hanging over the shoulder). The assistant will be able to support the injured person, and help him along effectually, by pressing his hip tightly against the back of the latter's hip; he will even, if required, be able to lift him up from the ground and carry him thus a short way. When an un-

conscious person is to be carried away, and there is no ambulance obtainable for this purpose, two assistants are necessary. One assistant will then hold the patient round the trunk of his body, while the other takes the latter's feet under his arms (Fig. 273).

Accumulation of Gas in the Intestines. (See "Flatulence.")

Acne Beard (Sycosis Mentagra) is the name given to a skin disease which is characterised by the formation of nodules and pustules on the hairy parts of the face.

The malady begins with the formation of little vesicles, about the size of millet seeds, which are filled with a purulent or matter-like substance. These little vesicles gradually unite and form one large pustule; then they either dry up, forming a kind of scab or crust, or else they become moist, in which case the part of the face affected generally swells. The causes of the inflammation and suppuration of the hair follicles described above are to be found either in independent inflammation, produced by some external influences, or through infection arising from the use of unclean, and sometimes infected razors, powder puffs, sponges, etc.* By such means as these, a kind of fungus is transferred to the skin. At the same time it must be remembered that when this disease arises in the last-named way, there must also be already a susceptibility to infection, through the system being full of unhealthy matters likely to cause disease.

The treatment consists in cutting the hair short, or very carefully shaving it off from the infected places, after which olive oil must be rubbed in, in order to soften the crust.

* If one does not wish to retain the beard—the ornament of manhood—follow these precautionary rules when being shaved at the barbers: Allow the use of razors reserved for yourself only; also a private shaving brush, and one's own towels for drying on. Never allow yourself to be powdered with a powder-puff which is in general use, but only with a piece of clean cotton wool, which can be simply thrown away after use. The public has a right to demand that barbers, as well as other public traders, should be compelled to satisfy the requirements of hygiene, for not only a large number of catching diseases can be spread from the barber's, but we have sufficient evidence to show that the barber's chair is both a source and centre of infection; nor are the diseases all of them as comparatively unimportant as acne of the beard, for even syphilis is among their number, the slightest scratch or cut with the razor is sufficient to engraft pathogenic organisms or those that cause disease, and every deadly disease into the system.

There should then be an intelligent application of local vapour baths and stimulating fomentations, alternating with cooling fomentations, also revulsive* massage of the throat on one day, and on the next day either reclining vapour baths, or whole packs, foot vapour baths, and so forth. The dietary must be non-exciting; in some cases it is also advisable to adopt a course of lowering diet.

Acne, Facial Eruption. — Acne is an eruption found on the non-hairy parts of the face. It is characterised not only by inflammation of the sebaceous glands of the skin, causing small pustules, blisters, little knots, etc., but also by severe inflammation and swelling of the affected parts, causing new formations in the blood vessels of the same.

The majority of people are all too easily persuaded that it is merely the result of too much wine or brandy drinking; but not at all! It may also be caused by certain forms of stomach and bowel diseases, sexual ailments (diseases of women), pressure of blood to the head, or continuous external irritation—for example, too much heat or cold, etc. The nose, with the neighbouring parts of the cheek, is the favourite seat of acne.

The treatment must be directed to the removal of the fundamental cause. The diet must in every case be plain and simple, consisting chiefly of vegetables. The use of alcohol or narcotics is strictly to be avoided. Stimulating neck and throat packs, at 68° to 72° F., together with stimulating body packs at 73° to 77° F., and stimulating calf packs at 68° to 72° F., should be applied at night. Through the day from two to three trunk baths at 77° to 81° F., and once or twice weekly, a bed vapour bath (No. 1 or 2); or a cane-chair or box vapour bath should be taken. Aperient enemas, taken frequently, together with subsequent small cold ones, are also to be recommended. Further, steaming of the head; face affusions according to Kneipp; neck and throat massage; light and air baths; going barefoot; wading, etc., have a very beneficial effect.

Acne is a form of eruption on the skin, which arises from an inflamed condition of the hair follicles and of the sebaceous glands of the hair, through which small pustules and nodules arise. The favourite site of the eruption is the

* Revulsive means tending to draw the disease away from one part to another.

face (the forehead and the cheeks), the chest, the nape of the neck and the upper arm. It is not at all rare for the eruption to be accompanied by black-heads, blackish points in the skin, which arise through the stopping up of the canals for the excretion of sebaceous matter with tallow, and which then also contribute to the formation of acne. (See on this subject also pp. 155 and 156.)

At the age of puberty, or shortly afterwards, acne very frequently appears in persons of both sexes. In this case, as a physician has very "wisely" remarked, the eruption is either an indication that the person on whom it appears has led a very virtuous life, or has been guilty of secret sexual sins. This beneficent or non-malignant form of acne should, perhaps, be distinguished from that form of eruption which arises in consequence of constitutional troubles, such as syphilis, tuberculosis of the lungs, or other weakening diseases. An eruption very like to acne, but which is not to be confounded with the non-malignant species of blotch that arises solely and alone from a faulty constitution of the humours of the body, is often produced through the internal use of drugs, such as bromide of potassium, iodide of potassium, and many others; through the inunction of grey mercurial ointment, of tar, etc.; or after sprinkling open ulcers or wounds with iodoform.

The treatment consists in the application of a general strengthening or tonic cure, in which a chief place must be given to daily washings of the body all over every morning with water at from 73° to 77° F., or frictions at 77° to 81° F., two or three daily trunk baths at from 77° to 81° F., or hip baths at 83° to 89° F., of a duration of from five to ten minutes; weekly two to three vapour baths (cane-chair vapour baths, bed or reclining vapour baths, local applications of steam); frequent laxative enemas at from 77° to 81° F., in combination with subsequent enemas that are to be retained at from 64° to 68° F.; sun baths, light and air baths; a mild, non-stimulating, easily-digested diet, with the exclusion of all fatty, salty, sour and highly-spiced dishes, plenty of exercise in the fresh air, etc. The use of so-called "beauty-soaps" and other tinctures, of powder and rouge, generally produce exactly the opposite of what is intended and desired, namely, a great increase of the eruption.

Acute Diseases. (See Index.)

Addison's Disease consists in the chronic inflammatory affection, or a tuberculous degeneration of the kidneys.

The cause of the disease is, as yet, very little understood. It develops but slowly, from extreme poverty of the blood, and muscular weakness.

The patient continually declines, and digestive troubles and loss of appetite exist, acidity, vomiting, obstruction in the pelvis, diarrhœa, and, later on, mental aberration, headache, insomnia, and, finally, inability to rise. The colour of the skin gradually changes, according to the parts exposed to the air, face, hands, wrists, lower parts of the leg, nipples, arm-pits, and sexual organs being of a dark grey, or smoky bronze, which diffuses itself over the whole skin. The whites of the eyes remain unaltered, while, on the contrary, the mucous membrane of the mouth exhibits a blackish-brown colour. The colour of the urine is deep and dark, the sexual appetite completely extinguished, severe pains of the muscles and joints are experienced, followed by swooning, fits, and delirium.

The disease ranges from months to years, a complete cure being difficult and rare.

The treatment consists of the "General Strengthening Treatment," the use of baths, tepid ablutions, and on alternate days massage (the kidneys excepted).

Affusion. (See Index.)

Affusion, according to Kneipp. (See Index.)

Affusion, Arm, Kneipp's Treatment. (See Index.)

Affusion for the Back. Kneipp's. (See Index.)

After-Birth (Placenta). (See "Birth.")

Age (the age of individual mankind). — But few people reach a ripe old age in these living-apace, exerting and struggling times, which play havoc with the health and longevity of mankind. Whereas former statistics showed the average life of man to be thirty-five, they now show an average of thirty years. This is a very grave sign of the health conditions of to-day. The duration of life in the animal kingdom is in proportion to the time taken for its growth, and it is only in the human species that we have an unfavourable exception. Scientific men have laid down the rule that there is a proportion of one to seven between the growth and duration of life in the animal kingdom; that is to say, that the duration of life is on the average seven times longer than the time taken for growth. For instance, the horse grows until its third or fourth year, and attains an age of twenty-five to twenty-eight years; our "domestic pet," the mouse,

is fully grown at about eight months, and attains an age of four to six years, providing, of course, that its existence is not cut short in a violent manner, as it usually is. The stag is fully grown at the fifth year, and the duration of life, if not shot in the meantime, is thirty-five years. The camel grows until its seventh year, and attains an age of fifty years; whereas the man, who, in a general way, is not exceptional naturally, but possesses bodily structure similar to the animal world, should, considering that growth is not completed until the twentieth year, by the same law attain an average age of 140 years. Cases of this age being attained do not occur at the present day, or at any rate very rarely indeed.

Quite to the contrary, statistics have shown us that, as a rule, out of 3,000 people only one attains the age of ninety years, and that out of each 1,000 people only 100 reach the age of seventy years. These facts are accounted for by the circumstance that civilized mankind is only relatively healthy. The present generation in most cases carry disease germs from their birth. Every individual has a greater or lesser disposition to disease, or a dormant, or, sometimes, an already apparent, inherited disposition to this or that disease. Culture and civilization, and the consequent great strain on body and mind, have weakened mankind, and made the body more susceptible to outer influences. Culture prevents mankind from living under perfectly natural conditions. Knowledge of diseases—knowledge of the human organism and causes of diseases—was created in this way, as it afforded an excellent opportunity for this. Nearly everyone, I would again point out, is born with a disposition to a certain disease, and, as a rule, die sooner or later of this—I may say family disease. Seldom as the age eighty to ninety years is attained, it is also the exception for people to die a natural death, that is to say of the debility of old age (senile debility), where they sink peacefully to eternal rest without undergoing agonising sufferings. It should be everybody's aim to attain a ripe old age, and a natural, painless death. But, unfortunately, such efforts are not practically made; in fact we are unable to do so, being unable to alter our individuality, or to rid ourselves of the inherited disposition to disease, or return to the natural state of Paradise. By means of our intellectual faculties, our means of soul-inspiration, our advance in arts and science, we are born and bred to

civilization, and our task can only be, as I have already pointed out on p. 162, Chap 18, of the First Part of my book, to become a healthy being of civilization. We have the means of prolonging a life (already weakened by disposition to disease), by the art of dieting, the art of recognising one's physical nature and its weak spots, and adapting every, day life accordingly. It is only by weighing one's physical capabilities, knowledge of one's constitution, knowing the evil external influences to be guarded against, and avoiding or remedying them, that mankind can hope for a relatively, high standard of health and prolongation of life.*

Ague, Malarial Fever, Cold Fever, Intermittent Fever (Febris Intermittens). — The name "intermittent fever" applies to an illness which is caused through the breathing of an impure air, such as miasma. The characteristics of this disorder are, that while it runs its course there are intervals during which there is no fever, the fever afterwards returning again till the next feverless interval arrives, the duration of each of these attacks of fever being always definitely known beforehand. There is no doubt that malarial, or intermittent fever, is endemic, or limited to certain districts where there is marshy ground, and where the illness is caused by the decomposing vegetable matter in the marshes in which the malaria poison is hidden. The sufferers from this illness have been found to be more or less numerous (and the intensity of the disorder to increase or decrease) as the decomposing vegetable matter increased or decreased. (Comp. the observations on p. 408). As a rule, only those people are attacked who, while living in unhealthy places, lead an irregular life, such as excess of any kind, or live on an improper diet, which weakens the system, so that the malaria

* In a small place, Haddatha, five hours from Saffed, in Asia Minor, a Turk recently died named Hudschi Soliman Saba, aged 132 years. He had (according to the "Wiener Vaterland," the Viennese national newspaper) had seven wives, who all predeceased him. They bore him sixty sons and nine daughters, all of whom are dead. He married the seventh wife when he was ninety-eight years of age, and she had three sons by him. At this time he still had ideas of matrimony, but had not the necessary money. All his lifetime he had been a farmer, ate nothing but rye bread and beans, and drank water. Meat was only partaken of on the two Turkish festivals of Beiram. His attire consisted of a long linen shirt, trousers he wore only when travelling. He had no illness during his lifetime until four days before death.

poison is offered a good basis for operations. But persons having great bodily hardships to overcome may also contract the disease. The illness is not capable of being carried from miasmatic places to other healthy places, nor is it possible that the miasma can be transferred from one person to another. When a person has once been affected with the illness, his constitutional disposition for another attack is increased according to the constitution of the affected person, the grade of the contagion, and perhaps also the geographical situation of the locality where the disease was contracted. Several different kinds of malarial fever may be observed: 1. The simple intermittent fever; 2. The remitting (relenting); 3. The continual; 4. The pernicious (malignant); 5. Complicated. Besides these there is yet another kind, which is occasionally found in districts where malaria is very prevalent, and which is called cachectic malaria.

I will now turn to a few clinical particulars. The stage of incubation lasts, as a rule, from two to two-and-a-half weeks. The premonitory stage (when it may be observed) only lasts a few days. Loss of appetite, a feeling of coldness, great exhaustion and collapse, pains in the head and limbs, disturbed sleep, &c., represent the symptoms of the premonitory stage. When the "complete" illness has set in, it has three stages. These belong to the complete intermittent fever (*febris intermittens completa*); the cold, the dry-heat, and the perspiration stage (comp. I., Chap. 34, p. 383).

In a case of simple intermittent fever, there are alternate short attacks of fever and feverless intervals, the duration of the attack and of the interval being about the same. The cold stage sets in with great exhaustion, weakness, and much gaping, followed by a feeling as if cold water was running down the skin, and fits of shivering, which are sometimes so violent as to shake the bed. The teeth chatter, the lips move, the eyes seem watery and tinged with blue, and the whole surface of the body is cold and pale, the pulse and breath being quick. Sometimes there are noises in the ears and vertigo. The stage of cold lasts from about half-an-hour to three hours. The change into the stage of heat is gradual; the outer skin grows red, hot and dry. The cheeks are hot and red, the face is bloated, the pulse strong and full, the pulsations in the neck beat strongly, there are pains in the region of the spleen, and the urine is scarce. The height

of the fever is from 104^0 to 106^0 F., and even more in some cases.

The stage of heat lasts from four to six hours, or, in serious cases, from eight to ten hours. Then a crisis of perspiration sets in. The perspiration commences first in the armpits and on the forehead, but soon the whole body is covered, so that the skin that has hitherto been dry becomes moist. The perspiration increases till the head and chest are freed from pressure and pain, when the pulse gradually becomes regular again, and the breath normal; the urine which is passed now is of a deep colour, and contains a sediment of salts. The temperature of the body becomes normal again (sometimes the temperature will be even below the normal one), and the patient falls into a quiet sleep, from which he awakes feeling better, but very weary. An attack of a "complete" intermittent fever is now ended.

In some cases the course of the fever is not quite like that mentioned, because there is not the development into three stages, and one speaks then of an "incomplete" intermittent fever (*febris intermittens incompleta*). In this case a freedom from fever may set in after any attack, this freedom from fever being scientifically termed "apyrexia." In this case the patient may be free from fever, but still he will feel ill (more or less). As the attacks of fever return periodically, one can, by taking into consideration the time when one attack occurred, say almost definitely at what time the next will follow. If the return of the fever is exactly twenty-four hours, or nearly twenty-four hours, after the foregoing attack set in, one applies the name "quotidian ague" to it. When the fever returns forty-eight hours after the foregoing attack has set in, so that there is a feverless interval of one day between the end of one attack and the beginning of the next, one speaks of a "tertian" ague. Both these kinds are the most general and numerous. Longer feverless intervals are designated by the name of "quartan," "quintan," etc. In the cases in which the return of the fever does not set in at the regular time, being either a few hours too early or too late, one speaks of an "erratic" or "irregular" ague.

The course of the fever is often changed through this early or late coming-on of the paroxysm, tertian changed into a quotidian ague, and vice versa. In rare cases there are two attacks of fever daily, this state being called "*febris*

intermittens duplicata.” An important clinical feature during this fever is the swelling of the spleen, which may be observed both during the fever and feverless intervals.

The remittent malarial fever, and the continual malarial fever, are, as a rule, only to be found in tropical regions. The fever constantly remains for from eight to fourteen days, and sometimes only abates when it assumes its intermittent character. This kind of fever is often accompanied by affections of the stomach, intestines, liver, or kidneys, etc., as well as by a derangement of the nervous system.

With a hidden, intermittent fever, there is, as a rule, no sign of fever present, but definite symptoms of an illness set in at almost certain periods, and these are afterwards followed by intervals without any symptoms.

The malignant (pernicious) malarial fever is characterised by the severity and length of each paroxysm, as well as of the illness itself; it is also characterised by serious organic affections, and by other symptoms which appear in this, but are not present in the other forms of the fever. Pernicious malarial fever is exceedingly dangerous in cases where weak persons, old people, or children, are affected with it. We sometimes then find an extensive swelling of the spleen, plethora of the brain, anæmia, heart affections, etc. On the other hand, in some cases the complete fever does not run its definite typical course, the patient often remaining continuously in the cold stage, which causes torpor and collapse (cold fever). Or in the heat stage, brain affections (delirium, giddiness, unconsciousness, etc.) may set in, as well as heart troubles (inflammation of the heart, etc.), which may cause the patient's death. These do not include all the possibilities in a case of pernicious intermittent fever. The name “chronic intermittent fever” is applied to a certain form of the fever, whereby the patient is so affected, after one or more attacks of the fever, that various chronic diseases set in, which may be traced to contagion by the miasma in the body. The following will be the clinical features, according to the malignancy of the humours: Great exhaustion, loss of appetite, sleeplessness, swollen abdomen, coated tongue, headache, nervousness, yellowish colour of the face, rheumatic pains in the limbs, a state of cramp, organic affections, disturbed mind, etc. As regards the prognosis, the view one may take is, that a cure of the illness becomes relatively favourable as the character of the fever is more changeable; and it is also a

favourable sign when the single paroxysms are of a short duration. In the tropical regions the intermittent fever mostly sets in in an acute, serious form, and shows such a persistency, that anyone who has been affected by it is, in most cases, obliged to change his place of residence in order to be entirely cured.

The treatment should be the fever treatment indicated in II., Part VI. In the cold stage of the intermittent fever damp warmth is recommended, therefore the bed vapour baths No. 1 and No. 3, as well as cane-chair vapour baths, should be used. It will be of advantage, in order to make the blood circulate more quickly into the vessels of the skin, to rub the whole body with dry, warmed cloths, or else rub the body in a full bath at 99° F., before the above-mentioned vapour baths are used. After a vapour bath, of which the duration must always depend on the condition of the patient, one should apply a trunk bath, at a temperature of 82° to 86° F., which may last from ten to fifteen minutes, or, instead of this, a bath in which half the body is in the water. This should be of a temperature of from 85° to 91° F., and may last from five to ten minutes. In the time that elapses between one bath and the next, one should put soothing compresses (73° to 77° F.) on the trunk of the body and on the abdomen, as well as stimulating compresses on the fore-arm, wrist, and calves of the legs. (These should be of a temperature of from 68° to 72° F.), the compresses being changed and renewed after from one to two hours. In order to lower the internal heat, one should give (in both the hot and cold stages) numerous emollient enemas, from 77° to 81° F., to be followed by small cold ones of from 68° to 72° F.

In the perspiration stage I can recommend (if one wishes to use something) mild vapour baths (comp. also I., Chap. 34, and Chap. 38). Further, do not suffer any one of the "learned profession" to give quinine, the favourite allopathic specific. If some good really came of its use, one would not see so many intermittent fever-stricken patients, under medical treatment, go the "way of all flesh."

Air Light Bath. (See Index.)

Air Pillow. (See Index.)

Albuminates. — The so-called proteid matters (from the Greek, *protos*, the first) form the fundamental substance of all organic structures, and consist of egg-white (albumen), fibrin and casein (or cheesy material). Of this proteid substance,

albumen, or egg-white, is the most important. It is found in solution, in large quantities, in the blood, in the chyle, in the lymph, and in all the juices or fluids with which the body is saturated. Further, it is found in the juice of the flesh and of the connective tissue, in the milk, in wheat, in the whites of birds' eggs, in cereals, or green and leguminous vegetables (such as haricot beans, peas, etc.), as well as, in greater or less quantity, in the juices of all plants. Albumen coagulates at boiling heat, between 131° to 167° F., into the form of a white flaky mass, which is then insoluble in water. In urine the albumen is recognised by boiling, since this causes it to be precipitated as a flaky deposit. The albuminous bodies form the most important fundamental materials for animal life. They are the blood and tissue-formers of the first importance. Plants prepare albuminous matters from ammonia (sal volatile, or carbonate of ammonia) and nitrogenous salts. Animals and human beings form their albuminous materials from vegetable and animal albumen, which they take up in their food, and which is converted, by the action of the gastric juices and the pancreatic juices, in the course of digestion, into the form suitable for its absorption by the absorbent vessels that lead it into the blood, through which it is supplied to all the tissues. All animal and human albumen takes its origin ultimately from vegetable albuminous materials.

Alcohol is the intoxicating constituent of wine, beer, brandy, and other strong drinks. It is produced by the fermentation of organic substances containing sugar. Alcoholic drinks have an immediate exhilarating effect on the human organism, stimulating the nervous system and quickening the circulation of the blood. The exhilaration is followed by a reaction, which is more or less intense according to the amount and quality of the drink consumed. No doubt, my reader, you already know this by experience. The "seediness," so well known to rich and poor, is the natural result of the reaction, after intoxication which seems so necessary at a christening, wedding, inauguration, engagement dinner, coming-of-age festivity, or other important function.

In fact, people who are too abstemious seem to be looked upon as being mean, noodles. As the poet says:

"He who intoxicated ne'er has been,
Cannot claim to be a man."

But the medal has a reverse side also, for a very powerful movement, which is waging battle against the misuse

of intoxicating drinks, is actively engaged in all civilized countries of the world. A medical man, who is a worker in the temperance cause, says: "There is no doubt that the mischief wrought by alcohol to mankind is one of the great social evils still requiring a remedy — the doctor finds in his daily experience how it causes disease. The mental specialist must acknowledge the sorrowful fact, that a large percentage of lunacy is caused through alcohol; the magistrates and judges have constant examples of cases where alcohol has been the first cause of crime. Authorities on law, social politics and political economy, are agreed that this demon spirit, alcohol, is the ruin of matrimonial happiness, and has brought many a wealthy family to absolute poverty: also, our moral advisers must be deeply grieved to see how drunkenness sets up a lax careless view of this world, and a danger to morals in general. It is very necessary that we should have more statistics with regard to the evils caused by alcohol than we have had hitherto, for it is the most virulent poison to the individual and social organism. It would no doubt be a great surprise to know what an amount of bodily, social and intellectual power in a community is destroyed by taking this poison into the blood, and what material and financial losses are caused by it.

It is well known that alcohol, in the form of beer, wine, etc., and spirits, cognac, rum, gin, brandy, etc., is most extensively consumed throughout civilization. In beers we find three to five per cent., in wines ten to twenty per cent., and in spirits fifty to seventy per cent. It is injurious according to the strength of the alcoholic drink, the age and constitution of the individual and the length of its influence—the stronger the alcoholic drink the more injury will it cause the human organism: it follows, therefore, that there is less harm in those drinks containing little alcohol, such as beer, than in brandy and other spirits. In France, absinthe (an alcoholic drink, with the addition of etheric oils, fennel, wormwood, oil, etc.), is consumed to an alarming extent, whereas, in England and America, the lower classes mostly get intoxicated on gin; the Orientals, on the other hand, weaken their nervous systems and undermine the constitution by taking opium and haschisch, two plant-extracts which, when eaten or smoked, produce wonderful dreams, phantasies, and illusions to a bewildered and excited imagination. Opinion is still divided amongst physiologists as to the exact

action of alcohol on the body. In effect, small doses are at first stimulant to the nervous system, the brain becomes more active, muscular action more brisk, and the action of the heart much quicker, and then an all-round reaction or exhaustion of the functions of these organs follows. This languor takes place immediately if large doses are taken. The opinion of Liebig, that alcohol in the blood and tissues is converted into carbonic acid and water, and so preserves other important material for the human structure, is not yet proven; experience at any rate teaches us, that many drunkards are quite satisfied with looking healthy and well-nourished as long as the appetite is at all good, but immediately this has gone, a very rapid and life-shortening wasting sets in. Even the external application of alcohol (as dipping bandages in spirits of camphor, as very much used in France — the saying of the Samaritan is also applicable here, “and he poured wine and oil on his wounds”) has been known to produce alcoholic poisoning. A case is known of a lady who extensively used eau-de-cologne, and became very ill with delirium tremens. To young children, one or two table-spoonsful of 60 % alcohol would be deadly poison, and we should therefore strongly impress upon mothers the terrible wrong in giving brandy, &c., to babes, to induce sleep.

The signs and symptoms of the disease of alcoholic poisoning, which, unfortunately, is the most frequent of all poisonings, and, under the name of “intoxication,” known, alas, too well, not only by seeing but also by experiencing it! It is characterised, in the excitant stage, by a liveliness, lightness of ideas, and a feeling of increased bodily strength; everything seems rosy; heaven is not too high, and no distance too far; imagination is vivid; the intoxicated person is at peace with the whole world; the temperament becomes quite blissful, the speech more unbridled; the passions—love, violence, hatred, etc.—appear in quick and lively variations, and the drunkard often gives us insight into the innermost and usually closed recesses of his character which form a very interesting mind-study to the sober observer. Suddenly the liveliness disappears, and the intoxicated person falls in a heap, sinks into silence and a deep slumber — this is the reactionary stage of exhaustion! If the muscular energy is excited to such extent in the beginning, that the intoxicated person requires to or does expend it on any living or other object, the muscular strength will later be quite exhausted; if the

tongue is indefatigably active, it will later become unsteady and lolling, rendering speech difficult. Calling, shaking, or even the pouring of cold water on an intoxicated person, is often insufficient to awaken the drunkard from this sleepy condition. When he does awake, he slowly and with difficulty realizes the past! Severe headache, loss of appetite, terrible thirst, dry lips, a feeling of oppression and a tendency to vomit are his troubles. It is with difficulty that he grasps a sensible idea of any kind; his brain is clouded and devoid of sensê; the body is heavy, exhausted, and fatigued—in short, he exhibits the symptoms of a general poisoning.

After the rapid consumption of a large quantity of strong spirits, as in the insane custom of drinking for wagers, cases have been known where the unfortunate idiots have fallen in a heap, as if struck by paralysis, and in few minutes been dead. In one case, a man who was very intoxicated fell on his right arm. He could not rise, and remained undiscovered for thirty hours, and in consequence of the continued pressure, sustained acute inflammation of the arm. The bad results of the continual and habitual misuse of alcohol on the human organism are too numerous to detail. We will only discuss the severe disturbances in the nutrition which are caused by the action of alcohol on the digestive organs, and may mention, as diseases caused by it, inflammation of the bowels, jaundice, swelling of the liver, dropsy, swelling of connective tissue, inflammation of the kidneys, catarrh of the bladder, fatty degeneration, enlargement of the heart, calcination and consequent brittleness and tearability of the walls of the blood vessels (apoplexy, paralysis).

The organs of sensation even are not exempt from the effects of this abominable poison. Deafness, blindness, and frequently a defect in the sight, as though everything were veiled or misty; insensibility of the skin and paralysis of the one-half of the body are only too-frequent results of alcoholic excess! Doctors who are specialists for the insane, describe melancholia, religious mania, malicious mania, and lunacy in its worst forms, as being caused by chronic alcoholism. This terrible scourge also leaves its sign externally to mark its prey: the red puffy face, the blueish-red nose with eminences or blood vessels standing out; the sunken eyes, with their dull look; uncertain movements, trembling hands and alcoholic breath, tell even the uninitiated that an evil guest has undertaken the work of destruction. This picture

is temporarily changed when the poor being, with a trembling hand, once more places the brandy bottle to the lips, and gulps down the contents with a bestial greed; the whole appearance undergoes a change, the expression is more vivid, the movements and carriage of the body firmer, and new strength seems to fill the body — and so it goes on from time to time, until the body is totally wrecked.

The bodily and mental capability of the drunkard is continually moving backward; a physical, moral, and intellectual weakness is continually mastering him. The knowledge that they have ruined their own and their families' prospects drives many to suicide; sinking step by step, they lose all ambition, excepting the one to satisfy the craving for alcohol; even those with good family connections are not ashamed to beg for money for this purpose, others will not shrink from getting it by force. Often their rapacity knows no bounds; a regular drink-mania sets in, they simply pour down the drink, mostly the very bad fusel spirit, until they are senseless on the ground. After this comes a great dislike to all spirits, they are very penitent, and even look upon themselves with shame — until they once more fall back into the old trouble! If alcohol is altogether and suddenly withdrawn, the drunkard suffers from what is known as "delirium tremens;" also after accidents, such as fractures; also severe intermittent diseases, where the confinement in bed brings about a change from the usual mode of living, viz., a loss of the usual stimulant is felt. In this state the unfortunate being is temporarily mad, and is troubled by hallucination of vision and hearing during which he sees mice, rats, birds, snakes, etc. He tugs at the bed-clothes, smoothes them, at times thinking himself followed by all sorts of imps. A sufferer whom we saw, imagined in his delirium that people were getting in at the window; he trembled violently, and wanted his gun to protect himself. At times, during delirium, the patient is in a merry mood. A delirious patient (a chronic patient) whom we saw suffering with severe inflammation of the lungs, was continually laughing, and asserting "that he had never felt so well, but that the rats occasionally worried him;" others become very violent, and are only by stringent measures kept from destroying everything around them.

But we have had sufficient of these terrible and vivid illustrations. — Just this one thing — the most tragic side of the evils of drink lie in the fact that the sins of the fathers

are visited on the children, who show unmistakable signs of degeneration. They are mentally and bodily unsound, afflicted with various nervous ailments, of which epilepsy and insanity form the greater part. It is impossible to state the evils of alcoholic excess in a better way than by quoting the words of an authority on alcohol:

"If you call a man a suicide who ends his life by means of the knife, bullet, or rope, you certainly have a great right to call that terrible bane, "drunkenness," chronic suicide. Whoever shuns it prolongs his life!"

Alcoholic Poisoning. (See "Seediness.")

Allopathy. (See Index, under "Medical Treatment.")

Ambulance. (See "Accident, how to convey people who have had an," also "Bones Fractured.")

Amputation is the surgical scientific division of a damaged or diseased member (more particularly of the extremities) from the body. The Natural Curative Treatment does not go in for amputations, but strives — providing that no severe injury has been caused by violence, in war, etc. — to restore slightly injured or diseased limbs to a healthy condition. (For further information, see "Operations," in Index.)

Anæmia. (See "Bloodlessness.")

Anaesthesia, Loss of Sensation. (See "Paralysis.")

Anatomy is the science which teaches us the structure of the animal and human body.

Animal or Bodily Heat. (See Index.)

Animal Magnetism, Curative Magnetism.—By magnetism, in the inner sense of the word, is meant the peculiar property of certain bodies of attracting iron. Those which already possess this power in their natural state, as the magnet stone, are called natural magnets. Those which have acquired it through artificial treatment are termed artificial magnets. In nearly times, natural magnets, especially the magnetic stone, were used as curative agents, very frequently in the treatment of cramp.

The magnet is placed on the affected part of the body for from fifteen to thirty minutes, the part affected being at the same time turned towards the north, while the south pole of the magnet is placed in such a manner that its north pole is directed towards the north. In other cases, on the contrary, the magnetic stone was constantly carried about on the body. It was bound to the chest in large flat pieces, or to the abdomen, limbs, &c., or worn in the form of necklets,

bracelets, etc., these being inlaid with minute portions of the stone. This curative treatment was founded on mineral magnetism. Analogous to the laws by which iron is attracted to the magnet, the attractive power which draws all bodies towards each other was already, in primitive times, connected with magnetism. For maintaining a harmonious balance between the organic and inorganic worlds, some common power was supposed to exist, as connecting medium between body and soul, light and matter, motion and rest. This magnetic influence worked between organic bodies, men, animals, and plants, and especially, in perfection, between man and man. The attraction existing between living bodies was termed animal magnetism. Paracelsus, who reintroduced the science (I, p.256), was the first to connect magnetism with physics, and he held that all mutual attractions were magnetic. He speaks of magnetism, magnetic power, and magnetic mysteries. "Man," he says, "possesses a hidden power, which, in one way, may be compared to a magnet, for by it he draws from surrounding chaos the possibility of infection through the air. Man possesses a magnetism, without which he cannot exist, and the said magnetism exists on account of the man, not vice versa; and further, it is of stellar descent." So far Theophrastus Paracelsus. Everyone thus possesses the power of influencing, either voluntarily or involuntarily, those with whom he comes in contact. This power is developed in different grades, according to individual constitution. Some possess more, others less magnetic power, but, as experience shows, it may be increased by practice. To prove the certainty of this existing power, one has only to commence experimenting with himself. The nerves are, without doubt, the carrying medium of this power, and in the emanation of this nerve fluid lies the peculiar magnetic influence exerted by one individual over another.* Anyone then who possesses a surplus quantity of this nerve fluid, or "life power," or at least possesses it in a high degree, may exercise an extra-

* The present conception of magnetic power is of course opposed by men of more antique views. In former times, a fine, ethereal, generally pervading matter was supposed to be dispersed everywhere, penetrating animal matter generally and indifferently, and predisposed towards sick people. The older theories on animal magnetism have been utilised by Professor Oscar Korschelt, in his invention of the Sun Ether Ray Apparatus which has opened up a new era. (See Sun Ether Ray Apparatus.)

ordinary influence on others in what way he chooses to direct it, and most of all in the curative direction. Those who are most susceptible to this influence, magically exercised over them by others, are of course those of delicate health, or those who possess the peculiar fluid only in a very small proportion. The magnetically-strong man imparts to a weaker one some of his surplus "life power" by manipulating his body, and hereby magnetism emanates from the operator, and produces a wholesome effect on the physiological course of his patient's organism. For the performance of this, "many are called but few chosen." He only is capable of it who possesses a strong will, and mental powers, religious feelings, benevolence and love in harmonious combination. The born magnetiser must seek to show his psychical powers by deep-rooted, constant exertion for their perfection. He must be morally pure and harmoniously disposed. Strength of will cannot stand alone. Many persons of strong will power exercise a fascinating influence over their neighbours, but their curative influence would be nil. The healer must be inwardly convinced of his calling and his healing powers, the highest and best work of his life. Only a pure-minded magnetiser can impart a pure magnetism. The immoral and uncalled lives a life of discord, and so suppresses any magnetic influence he may be possessed of. How true, then, are the words of Justin Kerner, in his work, "The Prophetess of Prevorst:" "For God's sake let no one try his hand here in whose heart true religion and earnestness do not rest."

In the next place, a sympathetic bond must exist between the healer and his patient for successful magnetic treatment. Should the magnetiser be in doubt as to his ability to help the patient, he should stand behind him and smell his hair. If the smell is disagreeable, his magnetic influence has been of no effect, for the nerve fluid imparted by a magnetiser is, as Professor Jäger states in his work entitled "Discovery of the Soul," only carried to the diseased cells in the patient's body when a psychical affinity exists between himself and his subject. In magnetic treatment, this mutual sympathetic attraction, the mutual interchange of psychical sympathy, is called "magnetic rapport" (relation). The peculiar Curative Treatment consists, firstly, in posture, that of the subject corresponding to that of the magnetiser; secondly, in the manner of placing one or both hands, or the finger tips, to the patient's body, or in carrying the hand along the body, or in

laying hands on the body; thirdly, in blowing or breathing upon the patient, or on certain parts of the body; fourthly, in words spoken; fifthly, in the magnetiser's look. The patient's eye under operation should be directed towards the south, and, to facilitate this, his comfortable bed or easy chair should be, top end, facing the north. Dr. Anton Mesmer (born 1734, at Weiler, near Constance, on the lake of Constance, who founded animal magnetism, and from whom the name originates) prescribes as follows for magnetic treatment: 1st. — For successive mesmeric cure it is absolutely essential that the manipulant be physically sound, his influence, in the other event, would be more injurious than beneficial; and it is a fact, testified by experience, that in weakly-administered mesmerism the symptoms of the patient have been transmitted to his operator. 2nd. — Mesmeric strength depends upon individual peculiarities. Apparently-weak persons — women, even children — work in certain cases far more effectively than men, and, as a general rule, it may be said that opposite sexes produce better effect upon each other than one sex upon the same. 3rd. — The morning hours are best fitted, when animation of the organism is the end in view; the evening being best when it is tranquillity and sleep. 4th. — A quiet spot should be selected for the operation, and all curious folks and on-lookers kept at a distance, because strangers always have a disquieting influence, and they would probably hinder the proper development. Added to this are the finer antipathies, which nature, suspicion, or moral influences, set in motion. 5th. — The clothing should be light, certain materials, as silk, are to be avoided; and it is not necessary, although beneficial, to uncover the body, or even parts of it. 6th. — The magnetic sitting should begin with ten minutes, and gradually increase to twenty minutes, rarely reaching the outside figure — half-an-hour. So much for Dr. Mesmer. I must, in view of restriction, consequent in such a book as this, forego a closer view of the minute details of a magnetic sitting, and will only mention that two treatments, a positive and a negative, are distinguished. In the former the magnetiser works in the full extent of his will power. He looks fixedly at the patient, turns his palms towards him, holds up all his finger tips, or thumb alone, before him, and strokes his body — by long, slowly-drawn strokes and from different points of view, from head to foot, then backwards to the head in an upward and curved

direction. He should also blow strongly on the patient. In the negative form the magnetic operation takes the form of short quick strokes from head to foot. Affected or painful parts are not blown upon, but breathed over. Therefore, analogous to the principles of the water cure treatment, a stimulating, lowering, soothing, anti-inflammatory method may be spoken of, or a distinction between an impartive or receptive magnetism drawn.

Magnetic treatment is further divided into a general and local one. The former generally precedes the latter. The hands, "par eminence," take the first place in magnetic treatment. The nerve fluid streams from the finger tips, where the seat of the odic bio-magnetic principle is most en evidence.

According to the manner in which the hands are placed on the body, or parts of it, the effect is modified in its extent; and, according to the effect — weak or strong — desired, the hands should be placed at a corresponding distance from the body. The farther the distance the stronger the effect. Manipulation may take place with one or both hands, with one or several, or all the fingers. The strongest effect is produced by the thumb, and then, in order, the middle, index, ring, and little fingers. The inner edge of the hand — applied locally — has a positive effect, the outer, negative.

For the completion of the direct magnetic manipulation, intermediate bodies in many cases are chosen, which are then the conductors of the odic bio-magnetic principle. For example, drinking or bathing water, wadding, flannel, paper, wood, glass, etc., are magnetised either positively or negatively, and applied in corresponding manner. The method of magnetising water, positively, is as follows: The magnetiser holds a glass of water in his left hand. The finger tips, drawn to a point, are held at a distance of one to two inches over the surface of the water. In about one to one-and-a-half minutes they are loosened and held horizontally at the same distance. After a short time they are raised to from five to seven inches, pointed, and retained there for about a minute, when they are again lowered to the original distance of one to two inches, where they are horizontally maintained over the surface of the water. Those manipulations are repeated once or twice, when the drinking water has become positively magnetised. Its curative powers may then be applied in the case of diarrhœa, when it should be swallowed in little sips,

at intervals to from four to five hours. Little children have a teaspoonful off and on, perhaps every one or two hours.

When water is to be magnetised negatively, the glass is held in the right hand, and the magnetiser carries out minutely the above-mentioned prescription with his right hand. Negatively magnetised water is an antidote for constipation. Woman — as representative of the negative principle — magnetises water positively with her left hand, and negatively with her right. As in all other curative methods, striving for the true health of the body, not the suppression — at the expense of the collective organism — of the symptoms of disease; so it is in the application of curative magnetism which brings about a crisis. But it is possible to decrease the crisis in its intensity, the remedy being to hand in the magnetiser's finger tips. Curative magnetism is, without doubt, one of the most effective Natural Curative Treatments known, and has a great future awaiting it.

Animation, restoring, after an Accident. (See "Breathing, Artificial Respiration.")

Anomalies. (See "Abnormalities.")

Anthrax. (See "Abscess.")

Anus, Prolapse of, Inflammation of the Anus. —

The anus is the external opening of the rectum, through which the fæces or dregs are expelled, and is frequently the seat of prolapse and inflammation. The surrounding lining or mucous membranes are inflamed and swollen, and are seen in a ring-form mass outside the anus.

The treatment of prolapse or inflammation of the anus requires, firstly, purely local attention. The prolapse, which is nearly always complicated with inflammation, requires the application of body and soothing sitz baths, alternately with vapour sitz baths. After relieving the bowels, the prolapsed parts are to be gently got back into the rectum by means of a small piece of soft moist linen, or the oiled finger. A strictly vegetarian and easily digested diet, avoidance of coffee, tea, and strong drinks; rest in bed, and, during this, stimulating loin packs, with cooling extra compresses on the anus. Moistened lint, not carbolised, may be applied instead of the compress. The inflammation, which shows itself by a burning, and, at times, itching sensation, is caused in children mostly through worms, and, in adults, through piles, syphilis, condyloma (soft, warty excrescences) of the anus, etc., but, on the whole, the treatment should be the same, soothing,

cooling baths, body and sitz. Enemas, temperature 73° to 77° F., may be carefully used, and are, in simple inflammations, the quickest and safest means of cure. When caused by piles, syphilis, or other disease, treatment must be directed to the cause, in addition to the local treatment.

Aorta is the large artery, which is the root of all the arteries of the body which belong to the circulatory system of the blood. (See "Blood, Circulation of the.")

Aorta, Inflammation of.—Inflammation of the aorta, in itself, is felt as an intense pain on the left side of the spinal column, generally also feverishness. Treatment requires body baths 68° to 72° F., three times daily, or half-baths 72° to 74° F., twice daily, followed by getting warm again in bed, and applying stimulant compresses to the abdomen from the navel to the thighs, and, in addition, stimulant calf packs. If the fever is high, apply a soothing whole pack after the bath, an ablution, and then rub the body dry.

Aperient.—The self-prescription of drugs — without medical advice—to relieve sluggish bowels or constipation, or for "blood-cleansing," is a universal custom. As nearly every one is at enmity, either occasionally or at intervals, with their digestion, in consequence of the unnatural surroundings during their employment, and insufficient or total absence of healthy exercise, the use of aperient drugs to open the bowels is quite a daily institution in many families; besides this, patent medicines are largely used for this purpose. Aloe, rhubarb pills, sulphate of soda, Epsom salts and other stuffs are taken, aperient mineral waters of all kinds drunk, without, ultimately, any other effect than a severe and unhealthy irritation of the stomach and bowels, dryness of their mucous lining, a laxity of the muscular tissue of the bowels and a disordered digestion—the continued use of drastic purgatives may even lead to organic disease. The "Natural Curative Treatment" does not, of course, recognise aperient remedies in this sense of the word, but seeks, by a rational treatment of the organs of the body, to remove the inactivity of the bowels, which is, in the majority of cases, caused by the whole system being out of order.* The curative treatment

* Lay people are unable to judge whether the cause of their constipation is an insufficient secretion of mucus in the bowels, inflammatory conditions, or loss of tone in the muscular tissue of the bowel, or whether the constipation may not be removed by softening the accumulated and hardened fæces (dregs). By the use of aperient

of this disease is assisted by enemas, baths, sitz baths, and massage of the abdomen, which restore the digestion and regularity of the bowels. Hand-in-hand with these external applications, the internal administration of water and a suitable diet, in which fruit, raw or cooked, young vegetables, wholemeal bread, etc., are the chief articles of food. (For further information, see "Constipation" and "Stoppage of the Bowels.")

Apoplexy.—When an apparently healthy person suddenly and unexpectedly, and without any premonitory illness, either becomes unconscious, and at the same time loses the power of moving half of his body by his own will, or else dies on the spot, we say "He has had a stroke." Apoplexy results from the bursting of one of the blood vessels of the brain, causing the blood to flow into the brain tissue, or between the membranes, or in all of these regions. The cause may be either a chronic overflow, which leads to an expansion of the blood vessels and the lowering of their resisting powers, or be the result of disease in the brain vessels themselves. The tissues of the latter are frequently affected by a sickly condition of the brain matter or of the membranes, caused by formations in the brain, etc., and are rendered brittle and easily ruptured, and it only needs an impetus in almost any form, e.g., of a psychical nature, to bring on a rupture of the blood vessels and an overflow into the brain. The tissues are no longer able to withstand strong pressure of the blood, however caused. Or a degeneration of the tissues surrounding the vessels may result in an apoplectic seizure, or a failure (owing to advanced age) in the elasticity of the walls of the vessels may tend to a predisposition for this disease. In old people a calcification of the walls often occurs in connection with the same state in other vessels of the body, especially the aorta, and this state of affairs is revealed by irregular pulsation. The dry, brittle calcined mass which has supplanted the blood vessels, no longer able to expand and contract, only awaits the special impetus to burst and to send the blood into the brain. The symptoms depend on the size of the ruptured vessels, the amount of blood liberated, its position, and on the nature of the injury causing the rupture.

drugs only harm to the constitution can result, and increase the severity of the ailment; whereas, by using nature's own remedies, simple and pure, and certain in action, success is always assured, even when the cause of an ailment is not certain.

Premonitory symptoms, that indicate the approach of the seizure with any degree of certainty, but seldom exist, and only in cases where chronic overflow was the beginning. Thus the symptoms are only increased signs, found in cases of congestion of the brain. (See under that heading.) The disorder may also decrease without an attack. The attack itself, whether signs are present or not, occurs in this way: The patient falls with a loud cry, or without a sound, to the ground, losing consciousness; his breathing is distressed, snoring, or rattling; his face is either pale, drawn on one side, or red, or reddish-blue; the eyes have a staring, fixed expression, the pupils dilated, the eyelids half-closed. Saliva and froth surround the mouth, which is drawn on one side and downwards. The pulse is either hard and full, or weak and dull. The limbs of the one side hang limp. The seat of the paralysis is on the opposite side to that in which the blood has exuded. In milder cases the patient regains consciousness in the course of a few days, or, it may be, of weeks. The rush of blood in the brain becomes normal, the paralytic symptoms disappear, and the patient's health is apparently re-established. In graver cases of apoplexy, especially where the rush of blood is very great, or where a greater disturbance is set up, death ensues either at once, in perfect unconsciousness, or consciousness is regained for a very short time, but only to be followed by violent sickness, convulsions and delirium, finally, by overpowering sleep, in which the patient passes away.

Often, after consciousness has been regained, the partial paralysis, and a certain difficulty in thinking and speaking, remain—sometimes in a marked, at others in a less degree. Persons of advanced age (forty to fifty years old), as well as those who quickly become stout, are subject to these attacks, which occur more often in males than in females. Alcoholic, gouty, and consumptive, or any form of constitutional weakness, tends to apoplexy. It is well known that a so-called “apoplectic habit” is attributed to persons of short, thick-set stature, broad chest, short thick neck, purplish round face, and of corpulent build.

The treatment consists in preventive measures. Stout, apoplectic persons should adopt the instructions given as to “Corpulency;” older people, or thin ones, predisposed to apoplexy, should follow those for “General Strengthening.” In a case of this sort adopt the given measures under the heading

“Obstructions in the Brain Arteries,” and “Inflammation of Dura Mater.”

Aphthae. (See “Thrush.”)

Appetite, Loss of, accompanies feverish ailments, catarrh of the stomach, etc.; worry, bad diet, use of tobacco, etc., are also causes. The treatment must be by removing the cause. One should either abstain from taking anything at all, or every hour one tablespoonful of fresh cold water, or cut a lemon into small slices, cover them with water, and take frequently a teaspoonful of this extract. When the appetite begins to return, take very light broth, stale bread with plum or apple jam, a little lean meat, toast, one or two soft-boiled eggs, etc. Softening enemas, followed by cold ones, should be given; also apply stimulating abdominal bandages, to be changed every one to two hours. One or two body baths daily will be found serviceable.

Arm, Fracture of. (See “Bones, fractured.”)

Arsenic Poisoning.—There are two forms of arsenical poisoning, the acute and the chronic. Acute arsenical poisoning which is caused by taking white arsenic, rat poison, or Scheele’s green, has the following symptoms: Usually one to two hours after taking the poison, burning pains are felt in the abdomen, which are increased by pressure, giddiness, restlessness, and a feeling of dread followed by sickness, choking, vomiting, diarrhœa, convulsions, and cramp in the calves of the legs. The motion has an appearance of rice water, and smells excessively disagreeable. The skin is pale and cold, the pulse is slight and irregular. Thirst, dryness and irritation in the throat, etc., give us a vivid picture of the symptoms of this poisoning. If conscious, the patient should be made to vomit by irritating the epiglottis with a feather, or putting the finger as far down the throat as possible, or give large quantities of lukewarm milk. As an antidote, five to six spoonsful of calcined magnesia in a cup of water to be taken at a draught. The magnesia must be well mixed with the water by stirring or shaking. Chemists sell an antidote to arsenical poisoning, consisting of calcined magnesia and peroxide of iron. This, after being well shaken, should be given at first every five to ten minutes, in doses of one to two table-spoonsful; should the condition of the patient improve, the same dose to be repeated every half-hour. If nothing is at hand, administer lime water. If cramps, faintings, giddiness, or other brain symptoms are present, give black coffee, or any alcohol.

To excite the action of the skin, a cold moist friction, at 68⁰ to 77⁰ F., or a cool ablution all over, followed by applying a stimulant abdominal compress at 64⁰ to 68⁰ F., or a thick damp compress, 59⁰ to 64⁰ F., to the stomach and abdomen. Enemas are recommended, to stimulate the action of the bowels.*

Arteries of the Human Body (Blood Vessels).—These are spread in branch and net form, forming a kind of canal system, running through the whole body, some thick, others thin-walled elastic tubes. Through these tubes a red fluid, the blood, is uninterruptedly driven in a circuit. The blood stream from the heart travels through this network to all parts of the body, and back again to the heart. These tubes, which convey the blood in circuit, are called “blood vessels,” or, more shortly, arteries. The tubes, which convey a white blood-like fluid, “lymph,” from all parts of the body towards the heart, and pour the same into the blood before it re-enters the heart, are called lymphatic vessels, or lymphatics. The blood vessels, which convey the blood in short spasmodic motions to the various individual organs and parts of the body, are called arteries; those which convey the blood back again to the heart, veins. The centre of communication between arteries and veins, and thereby heart and lungs, takes place in the capillary vessels, which are such extremely minute vessels, that they can only be distinguished by magnifying lenses. The capillary vessels form an exceptionally fine network, which connects the finest terminal ends of the arteries with the very minute commencement of the veins. These three different kinds of blood vessels have no distinct line of demarcation, but run into each other, the arteries into the capillary vessels, and these again into the veins. The chief blood vessels are shown in Fig. 274. (See also “Circulation.”)

Arteries, Enlargement of the.—Enlargement of the aorta, by which is signified an unhealthy change in the walls of the arteries. The distension takes place at those spots where the power of resisting blood pressure is least. In bad cases an expansion or enlargement of the aorta takes place.

* As the absolutely first necessity in cases of arsenical poisoning is to administer substances which, mixing with the arsenious acid, form a new chemical combination which is insoluble in the juices of the stomach and intestines, and consequently prevent the arsenic from entering the system, it is necessary to send immediately for the nearest doctor, who would then prescribe the proper antidotes.

These pathological changes are generally found in connection with inflammation. They are worst in the upper aorta, more rarely found in the abdominal aorta, and most seldom in the

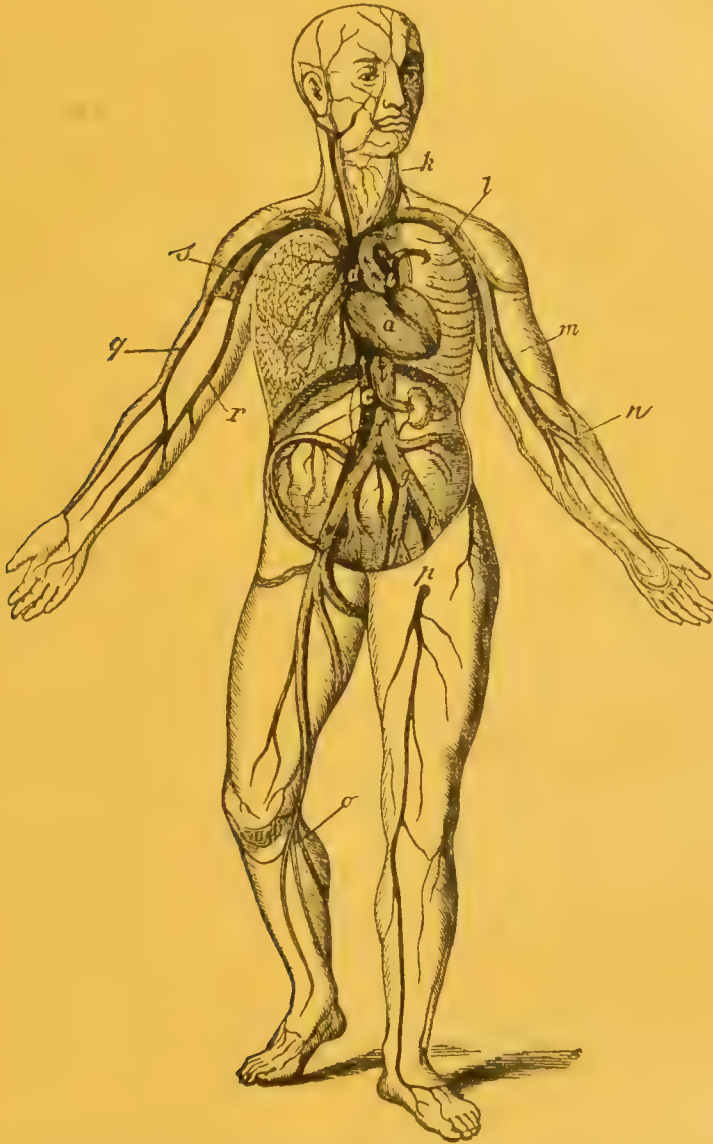


Fig.274. Illustration of the Principal Blood Vessels of the Human Body.

(The veins are presented dark, and the arteries light.)

a. The heart. b. Pulmonary artery. c. Superior vena cava. d. Inferior vena cava. e. Aorta. f. Descending aorta, which divides into the two iliac arteries. g. Division of the iliac artery into the femoral artery h, and into the internal iliac artery. k. Carotid artery. l. Subclavian artery. m. Brachial artery, dividing into the radial artery n, and ulnar artery. o. Division of the popliteal into the anterior and posterior tibial and peroneal arteries. p. Great saphenous vein. q. Radial vein. r. Ulnar vein, connected at the elbow-bend with the radial vein by the median vein. s. Internal blood vessels of the lungs.

extended ramifications of the aorta. It has been discovered from dissection that enlargements exhibit a variety of forms, either the appearance of an internal hollow space closed at the end, or an equally long cylinder-shaped or spindle-shaped swelling.

The following are the symptoms of an enlargement of the aorta: Violent burning, throbbing, pulsating pain in the swollen part, darting into the cavities of the chest and abdomen; breathlessness, strong palpitation pain, in the heart region, pulsation of the carotid arteries, difficulty in swallowing, digestive disturbances, insomnia, &c., and a very irregular action of the pulse.

In enlargement of the ascending aorta, the beating of the pulse is weaker on the right side than on the left; whereas distension of the arch, or beginning of the descending aorta, causes just the opposite effect. These pulse irregularities are of the highest diagnostic importance. If the enlargement is in the thoracic or abdominal aorta, both pulses, and the carotid artery, simultaneously with the apex beat of the heart (whilst extending the pulsation in the lower extremities), will be felt some time after.

When the seat of the disease is in the ascending aorta, the pulses at the peripheral arteries will be felt some time after the apex beat. Should the arch of the aorta be affected, the left pulse action is behind that of the right. Similar anomalies in the pulse motion result from the protracted circulation of blood through the affected parts. In other cases physical tests supply us with the best diagnosis. The locality of the distension, if in the thoracic region, gives a dull sound on percussion. The diagnosis may be erroneous in case the distension is so near the heart as to create a confusion of the percussion sounds, and cause us to diagnose an enlargement of the heart.

The percussion of the abdominal regions has only an interest for the student. During auscultation occasional noises are heard, and among them a peculiar kind of "chirrup." Examination reveals (if the swelling be near the walls of the chest) a throbbing swelling, varying in size and circumference. By means of palpation, a rhythmical movement or beat in the swelling is discerned. The continuance of the malady fluctuates considerably. In most cases an unfavourable crisis occurs, the tumour bursts, the blood either discharges outwardly, or finds its way into one of the neighbouring organs.

Should the tumour not burst, it develops heart and lung disease, to which the patient succumbs.

Treatment consists in the judicious use of the "General Strengthening Treatment." The sufferer is washed once daily with water of 77° to 81° F., or more frequently; or takes daily, or on alternate days, a three to six minutes, half-bath, 86° to 92° F., or, every day, one or two body baths of 82° to 86° F., lasting from six to ten minutes. The general body massage may also be used with advantage. It acts upon the parts affected with less risk than local massage. The diet should be simple, plain, chiefly vegetarian. Alcoholic and narcotic drinks are strictly forbidden.

For constipation, enemata of from 73° to 77° F. are applied. The patient must be exempt from all strain and exertion, physical and mental. Remedies for mitigating the pain are compresses, partial vapour baths, etc.

Artificial Breathing. (See "Respiration, Artificial.")

Ascarides. (See "Worms, Intestinal.")

Ascites is the name given to a collection in the abdominal cavity, of water secreted by, and separated from, the blood. This is no independent disease, but is a development of diseases of the organs of the chest and peritoneal cavity, among them the lungs, the heart, the liver, the kidneys, the ovaries, and so forth. The following are the symptoms:

The abdomen becomes tense and swollen, the legs are swollen, there is difficulty in breathing, there are fluctuating movements of the abdomen when it is struck by the finger, and it gives forth, on percussion, a dull sound.

Treatment: Removal of the primary disease; modified lowering diet, modified in accordance with individual idiosyncrasy, constitution, and degree of the disease; or the "General Strengthening Treatment;" massage of the back, with particular effleurage, or friction massage; treatment of the region of the kidneys (see p. 653); dry packs, reclining vapour baths Nos. 2 or 3; a dietary consisting chiefly of vegetables, and especially containing plenty of asparagus, parsley roots, lemon juice, horse radish, grapes, etc.

Asthma.—The very prevalent complaint "Asthma" arises from many causes. It generally shows itself in a chronic inflammation of the air tubes and consequent difficulty in breathing, but this may also be caused by cramps or spasms, nervous derangements, or by the muscles of respiration, or

pathological changes in the lungs, in the branches of the windpipe (bronchial tubes), the throat, or heart.

Periodical asthma is mostly of a nervous nature, a spasmodic state which accompanies other diseases, as, for instance, piles, wind, constipation, hypochondria, hysteria, etc., and is dependent on excitement, change of weather, etc. Chronic, persistent asthma is mostly caused by affections of the lungs, as in emphysema (windy-swelling), calcification of the arteries, etc., chronic catarrh of the lungs, stoppages and loss of tone in the bronchial tubes, heart disease (pericarditis), diseases of the throat, etc.

The most common form of asthma is the difficulty of breathing, or spasm of the bronchial tubes. This spasm is caused by the contraction of the branches of the air tubes. (As is well known, the air tubes branch in fork-shaped branches, which become smaller and smaller.) The attack is characterised by violent periodic attacks of choking, and is mostly a purely nervous affection, and this appearance distinguishes from all the other difficulties of breathing caused by disease or organic changes in the organs of the chest. These attacks may take place day or night, but mostly in the night. Nervous asthma is most prevalent amongst hypochondriacs and hysterical subjects. The attack commences with a feeling of dread and oppression, and a sensation of fullness in the abdomen causing an extreme tightness of the chest. The patient attempts to draw a deep breath, but cannot do so; he has the feeling of having the chest casing tightly bound or hooped together. A terrible feeling of dread overcomes the patient. If lying in bed he will assume a sitting position, and seek for a rest for his hands, or jump out of bed in order to get better breathing, and does so with difficulty. Breathing becomes wheezy and whistling, and can be heard even at a distance. During these attacks the face is puffed, either pale or very red, and covered with perspiration; the skin is cold, the pulse feeble. The heart beats rapidly and irregularly. The duration of these attacks is uncertain, but usually ten to fifteen minutes, but may last one to two hours. The spasmodic state ends suddenly, or generally so, with eructations and yawning, or with cough and expectoration of a tough phlegm. The patient usually then feels recovered, or may still retain a sensation of tightness on the chest, which gradually disappears. The period at which another attack of nervous asthma may appear is uncertain, usually the next day or night at the same hour,

and in this way it may continue for five, ten, fifteen, or twenty consecutive days or nights. On the other hand, the attack may not recur more than once, or a few times yearly, or even for years. Patients afflicted with nervous asthma, or bronchial asthma, may live to a very old age, but of course frequent attacks weaken the heart and generally debilitate the body.

Heart asthma, caused by disease of the heart, is by far more dangerous and troublesome, though the attacks are very similar to the foregoing in their symptoms.

The asthma of children, which may attack them from the age of suckling to the ninth or tenth year, is a fairly dangerous condition. Its symptoms are want of breath, or holding the same back after a short wheezy inspiration. The period of these attacks is uncertain; during the paroxysm there is great chokiness. The skin is cold and pale; the face becomes livid; the eyes have a fixed expression. If the attack is very severe, it frequently ends in convulsions. The fight for breath (spasm) usually ends with a loud guttural-sounding expiration. The attacks usually appear without any warning, and mostly on awakening from sleep, whilst lying on the back; over-exertion of the breathing organs, as, for instance, screaming, laughing, running, etc. Children afflicted with scrofula and rickets are most liable to breathing spasms, but healthy children may be taken with it as a consequence of catarrhal affections (cold) of the breathing organism.

The treatment for asthma in the adult must be firstly by removing the cause. Pure air is a prime necessity. Country air and a warm climate are generally very beneficial, whereas cold, sharp mountain air increases the difficulty. Stout, phlegmatic patients are best suited by a dry, warm atmosphere, and nervous, thin people by a moist, warm climate. It should be a stringent rule to sleep with the window open. Seaside air is recommended for patients who are not too weakened or excitable; the stay in smoky localities is strongly condemned.

Very great attention must be given to an uninterrupted and normal digestion by the asthmatic patient. Constipation, accumulations of wind, etc., are to be treated by enemas, body baths, and stimulant abdominal bandages. Nourishment should chiefly consist of easily-digested vegetarian, farinaceous, milk or egg foods, and a great point is to possibly eat a very moderate and early evening meal (supper).

During the day bodily exercise should be according to the state of the patient's strength, and over-exertion is absolutely to be avoided. The skin is to be treated by daily whole ablutions at 77° to 81° F.

Short sun and air baths, followed by body baths at 81° to 85° F., are essential in the treatment of asthma; also bed vapour baths No. 3 or No. 4, for twenty to forty-five minutes, taken on each other day, followed by a half-bath, 85° to 89° F., or a body bath, 77° to 81° F., will also be found most serviceable. Cold ablutions of the chest, cold half-baths lasting only four to five seconds, cold sitz baths, cold foot baths, walking in water, treading water, barefooted walking in wet grass, walking on wet stone or freshly-fallen snow, etc. All these are applied, in suitable cases, to direct the circulation and to harden the system—with good results. Delicate, nervous patients are advised to prepare themselves for these cold applications by vapour baths to the legs or feet. A very prominent remedy for asthma must be mentioned, in the form of Kneipp's affusion. It is a very capital application for clearing the air tubes of obstinate mucus, and should be applied once or twice daily. Mild massage to the back and chest, with rubbing, followed by carefully-administered muscle beating and kneading process, is also advised. Massage of the whole body, with the above-described treatment for the bowels, may be applied where suitable. Apply the simple movements of the Gymnastic Treatment No. 8. Attention is also called to the "General Strengthening Treatment." To lessen the sufferings during an attack of breathing spasm, place the patient on a bed or couch with the head high, remove all tightly-fitting clothes, sprinkle and rub the back and chest with cold water, either with the bare hands, a skin brush, or skin-rubbing gloves, until the skin is red, or massage these parts with soft but impressive strokes; apply the muscle beating process to the chest only with the hollow of the hand; well rub the region of the heart; apply soothing chest and shoulder packs, or a vapour compress on the chest, and give hot foot and hand baths, 99° to 103° F., alternately with cold foot and hand baths.

The asthma of children is treated as follows: The diet should be non-stimulating, well-prepared food, plenty of milk, buttermilk, milk foods, wholemeal bread, and fruit. We should add to this the Hardening Treatment (see I. Chap. 17); also to be recommended, two or three bed vapour baths weekly,

followed by body baths, 77° to 82° F., or half-baths, 82° to 87° F. Fresh air day and night.

A sudden attack in a child requires treatment as follows: Place the child in a position to allow of the air easily entering the lungs, lift the child, incline it forward, slap and rub its back, but avoid violently shaking the body of the child in doing this. Sprinkle cold water on the face, chest, and back, and well rub the whole body with the bare dry hand; place hot water bottles at the feet, and irritate the gullet mechanically by tickling the uvula with a feather, or the finger. Apply hot foot and hand baths, alternately with cold, as well as stimulating abdominal calf and foot packs. The child may also have a half-bath, 82° to 87° F., providing cold water is at the same time poured on the head and back, and the chest and legs are rubbed in the water with the bare hands by a second person.

Even in cases where there is danger of choking, the life of the child is often saved if the foregoing instructions are energetically and patiently carried out until the danger is over.

Athetosis, Involuntary Movement of the Muscles.—Athetosis is a disorder of which the peculiar characteristics are symptoms of irritation in the region of certain muscles. These symptoms consist of involuntary, and occasionally quite extraordinary movements, through which the affected part of the body is kept in continual restlessness. Affections of the nerves, such as epilepsy, a certain paralysis of children, tuberculosis in the spine, etc., and paralysis (hemiplegia), are mostly at the root of the disorder just mentioned. The fingers and the toes are mostly affected by the involuntary movement of the muscles, the fingers being (generally slowly) stretched, bent, and pressed together, which occasions the most strange positions. In the same manner almost do the toes move. The joints of the hand very frequently participate in the involuntary movement; the joint of the foot may do so, too, but this happens more seldom. The unfortunate patient is quite unable, however he may try, to stop these movements. During night, when the body is resting, the movements grow weaker, or cease altogether. A patient having much bodily exertion, or certain physical defects, will find that the trouble does not improve, as these favour the involuntary action of the muscles. Should the disorder last long, it may cause the fingers, hands, or toes to be put out of joint, and to

occupy an opposite position. As a rule the muscles of the face, especially the muscles of the jaws, also participate in the involuntary movement, so that the patient is continually making grimaces. A complete cure for the disorder is difficult, and seldom accomplished.

As regards the treatment, it consists in trying to rid the patient of the cause of the evil. In doubtful cases one cannot do better than try the "General Strengthening Treatment," in which massage (a massage of the whole body) must play an important part.

Auscultation (Latin, *auscultare*, that is to say, listening) is the name given to the process by which one gains, by means of sound, a knowledge of what is going on in the interior of the body. Auscultation is the means used for investigations of the internal organs of the breast, the lungs, and the heart, and is carried out, either directly, by laying the ear on the part of the breast which is to be investigated, or, indirectly, by applying a hearing tube, or as it is technically termed, a stethoscope.

B.

Backache is never an independent disorder, but results from all sorts of convulsive affections, and vanishes when they are cured. These affections are inflammation of the spine and its nervous and serous joints, of the spinal cord, liver disorders, and those of the womb. (See these disorders.)

Bad Carriage of the Body, Treatment of. (See "Trade Diseases," p. 1420, "Spine, Curvature of.")

Bacteria. (See especially pp. 338 to 342, in Part I.; also pp. 400 to 403.) Bacteria are extremely small, plant-like organisms, but differing in this important respect from plants, in that they do not possess chlorophyl, or the substance which, under the influence of sunlight, becomes leaf-green. They appear in four different forms, of which the scientific names are, micrococi, bacilli, hypomycetes (or thread-like fungus), and spirilli (or corkscrew-shaped filament fungi). (See Fig. 275, a to d.)

The thickness of the bacteria, or lower vegetable forms of life that multiply by division, is about one-thousandth of a millimetre. The breadth and length is not more than five-thousandths of a millimetre. From one single individual, how-

ever, of these infinitely little fungi, a trillion can be produced in twenty-four hours in the blood, or in matter, when the fungus finds itself embedded in material suitable to nourish it; and then, within the next twenty-four hours, a trillion new growths can be produced from each one of these.

These facts have been proved by the researches of those scientists who are called bacteriologists, and who have cultivated bacteria artificially for "scientific" purposes. The bacteria grow lengthwise; their multiplication, however, takes place by means of a four-fold division. Scarcely twenty minutes is the necessary time for their growth and the formation of a new generation!

Bacteria live at temperatures of from 104° to 113° F. There are, however, also some bacteria which live in ice,* and there are even some which can live in a higher temperature, namely, above 113° F. From all this it will be easily seen, that unless nature herself had set some bounds, these lower forms of vegetable life, partaking of the nature of invisible mushrooms or toadstools, could multiply infinitely. The hindrance to this, which nature has provided, is to be found in

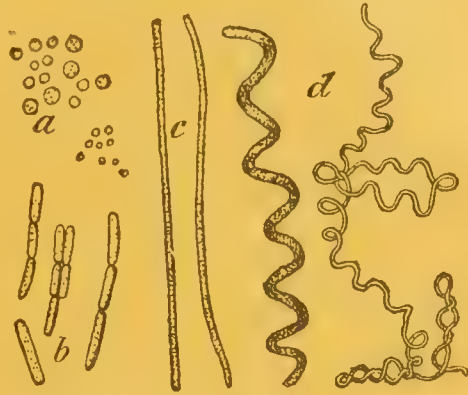


Fig. 275. Bacteria, or Fission Fungi.

a. Micrococci. b. Bacilli. c. Hypomycetes.
d. Spirilli.

* The favourite procedure of preserving food from destruction is, as is well known, the putting it on ice. In the age of Bacteriology, one must of course explain the protective working of ice by saying that injurious bacteria cannot exist at the temperature of ice. Foster, the well-known Professor of Hygiene in Amsterdam, has, however, discovered several kinds of bacteria that are quite healthy and lively, and able to multiply, and generally thriving at a temperature lower than zero, and who are not at all interfered with or injured by the extreme cold. Foster also found such cold-loving bacteria on and in ordinary articles of food, as, for instance, in fresh milk, and in river and sea fish. These bacteria multiply during a stay in the ice safe of sixteen days' duration to the same extent as in a six days' stay in a cellar at the temperature of from 13° to 15° F. in six days, and in a room at its ordinary temperature in two days. They therefore offer an explanation of why articles of food become unfit for use even in the refrigerator or cold room.

the fact that the bacteria, like all other forms of vegetable life, have also a process of assimilation and conversion of food, and the giving off of waste products. Now the extremely poisonous products of this process of conversion are also destructive to the bacteria themselves, and cause their death. Their multiplication, however, can take place in another way besides that described above. That is by means of so-called permanent spores. These bacteria send out in the course of their growth a number of threads, which possess a very remarkable tenacity of life. Heat, cold, damp, lying for years, nothing, in fact, seems able to destroy the capacity for life of some of these offshoots of the bacteria.

Bacteria are divided into two classes. The first are those which can only live in dead matter, the bacteria that produce fermentation, decomposition and putrescence, whose scientific name is "saprosites," and are very numerous indeed. The second class consists of those that live in living materials, and their number is fortunately much smaller, for they are the so-called pathogenic or disease-producing bacteria.

The diseases which are produced by bacteria are commonly called "infectious diseases," and the process of giving disease by their means is called infection. Accidental infection is called spontaneous infection; intentional infection is called inoculation.

According to the opinion of the bacteriologists, one is able to recognise pathogenic diseases, or diseases caused by bacteria that give birth to disease—and of these there is a pretty large number—by the following signs: First, if one is able to prove the presence of bacteria in the diseased body; secondly, if one can separate the bacteria from the body, and artificially cultivate them; and thirdly, if one can produce the same disease in another body (animal or human), through inoculation with a pure culture of these bacteria.

Baldness. (See "Hair, Care of.")

Bandage.—A bandage is a cleverly-arranged wrapper, to place round and to help in the cure of a wounded or suffering part of the body. A bandage may be of different kinds, such as a binder, a cloth, pieces of linen rolled round splints, etc. Therefore bandages must be made and fixed in different ways, according to the shape of the part of the body they are intended for. The following have to be taken into consideration when a bandage is applied: Firstly, that no dirt, dust, etc., may get into the wound; secondly, to cause

a slight pressure on the surface of the wound, so as to prevent or stop bleeding; and thirdly, to give rest and support to the suffering part of the body. Wounds caused by cutting, pricking, shooting, squeezing, etc., as well as ulcers and abscesses, and all painful inflammations on the skin, and also the parts

sewn together after an operation, require, as an indispensable covering, the so-called surgical bandage that is described in the article entitled "Wounds." In this article we will only describe the different bandages which sustain the affected part, and the outer layers which are used to keep those pieces together which are placed upon the surface of wounds.

A bandage which is a great favourite with doctors and nurses, because of the many different ways in which it can be used, is the three-cornered bandage. (See Fig. 276.) I will

mention, during the course of this article, some of the many ways in which it can be used, and would advise every one to have several of these bandages in the house, so as to be ready for any emergency.

Bandages for the extremities are represented in Fig. 277 to Fig. 282. A bandage (which is in the shape of the figure 8 when it is fixed) for the hand is shown on Fig. 277. It is

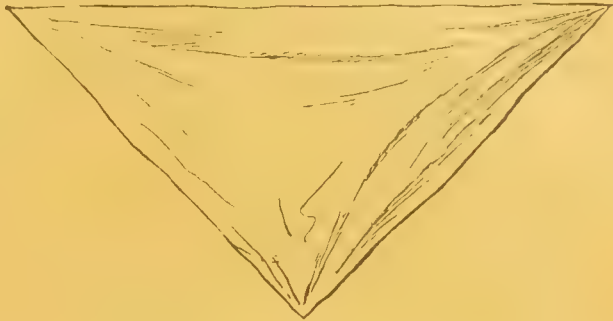


Fig. 276. The three-cornered bandage.



Fig. 277. A bandage for the hand.



Fig. 278. A bandage for the foot.

a three-cornered cloth, which is folded like a cravat. The thickest part is in the palm of the hand. It is then crossed



Fig. 279. A bandage for enveloping the whole of the hand.



Fig. 280. A bandage for enveloping the whole of the foot.



Fig. 281. Glove Finger Bandage.



Fig. 282. The Finger-tip Bandage.

once just below the toes; they are then crossed over the instep, and tied at the back of the foot near the heel.

over the back of the hand, twined round the wrist, and tied at the top of the wrist. The bandage for the foot, shown in Fig. 278, is applied in the same manner as that for the hand.

A bandage which envelops the whole of the hand is shown on Fig. 279. In a case where the hand is to be wrapped up entirely, it must be placed in the three-cornered cloth, the point of the cloth being turned towards the fingers. The point of the cloth is then turned down over the back of the hand and fingers, the two corners are crossed over the back of the hand, twined once round the wrist, and fastened at the top of the wrist.

A bandage to envelop the whole of the foot is shown on Fig. 280. It is applied in the same way as the one we have just described for the hand, except that the ends must be twisted round

The enveloping of a finger can be carried out either by the glove finger bandage (Fig. 281), the application of which it is not necessary to further describe, or by the finger points bandage (Fig. 282), which is made in the following manner:

First take a triangular piece of linen, sew on in the middle a long piece of linen tape or a strip of linen. The finger point is to be enveloped with the triangular piece, and the tape twisted round this, so that the bandage may be kept in position; the two ends of the tape are then crossed twice round the finger and once round the middle of the hand, being afterwards fastened at the side.

Bandages used round the forehead are represented in Figs. 283 to 289, but a special explanation is given about the bandage used for the forehead. The middle of the three-cornered cloth is folded like a cravat, put on the forehead, and tied at the



Fig. 283. The bandage for the forehead (knotted bandage).



Fig. 284. The bandage for the eye (knotted bandage).

back of the head; but if the cloth is long enough, it may go round the head once more, this time passing under the chin and over the top of the head, being fastened at the side with a safety-pin.

The bandages for the eyes and ears are applied in the same manner as the bandage we have just mentioned, only they are put on in a slanting position over the affected eye or ear. If the bandage is required very tight, a second twisting round the head is necessary. This is called a knotted bandage. We do not think further particulars are necessary, and invite readers to refer to Figs. 283 and 284, where the shape of the bandage is clearly shown.



Fig. 285. The chin-sling or bandage for the chin.

The bandage which is used for an affected chin is called a chin-sling, and is represented in Fig. 285. It can be made in two ways. The first way is to take a three-cornered piece of cloth, which should measure forty-five to fifty-five inches in length, from one corner to the other. An ingenious double sling can be made out of this by cutting it into four strips (that is to say, two strips on each side), but at the same time

leaving the middle part of the cloth uncut, which should be three-and-a-half inches wide, and which forms the bandage to put round the chin. When the middle or uncut part of the cloth has been put under the chin, the two smaller strips serve to fasten the bandage as they are (after passing the temples) tied in a knot at the top of the head. The other two strips, which are supposed to be thicker and longer, go round the neck, and can be easily crossed to go over the head (towards the front), where they should be tied in a knot, or fastened with a safety-pin.

The other way of making a bandage for the chin is thus: One should fold two three-cornered cloths in a cravat-like manner. Then one of the folded cloths is taken, and the

middle of it placed on the chin; the two ends then pass the temples, and are fastened at the top of the head (rather in front) by a knot. The other folded cloth is now taken, and the middle of it placed on the chin; the two ends then pass the temples, and are fastened by a knot at the top of the head (but this time more towards the back).

When the scalp, or, in fact, any part of the head (except the face) is wounded, the outer bandage will be composed of either the small three-cornered, the large three-cornered, or the large four-cornered cloth. The small three-cornered cloth (Fig. 286) must measure from forty-five to forty-seven inches at the longest side. The middle of it is put on the forehead; the corner of the cloth has to pass over the head to the back of the neck, where it must



Fig. 286. The small three-cornered bandage for the head.



Fig. 287. The large three-cornered bandage for the head.

pass under the crossing of the two longest strips, which are then slung round the head and tied in a knot at the forehead.

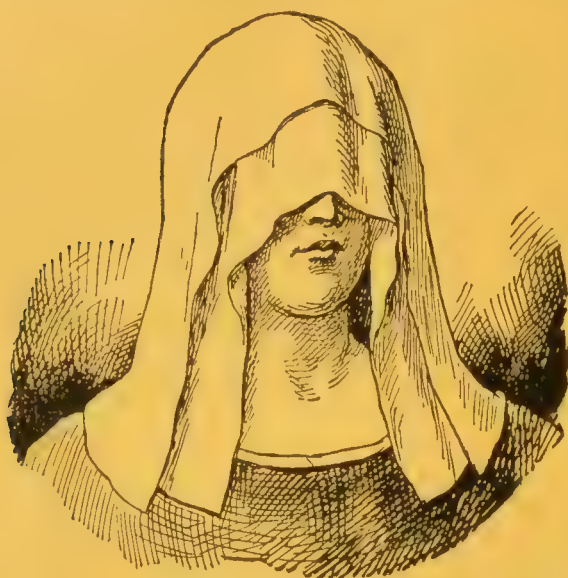


Fig. 288. The large square cloth for the head (loose).



Fig. 289. The large square cloth for the head (tight).

The point which then hangs down the back is turned round again over the head, and fastened with a safety-pin at the top.

The large three-cornered bandage (Fig. 287) is prepared like the one in Fig. 285, that is to say, it is cut exactly like it. The two smaller ends should be fastened by a knot under the chin, and the rest is fixed as already indicated in Fig. 286.

The large square cloth for the head is folded in such a manner that one part stands out from one-and-a-quarter to one-and-a-half inches more than the other part. The cloth is thus put over the head, the part which stands out falling over the face, so as to cover the eyes. (See Fig. 288.) The upper half is then fastened under the chin. The other half

which came over the eyes is turned back over the head, and firmly twisted round the part which was fastened first; the two ends are now crossed just under the chin, and fastened by a knot at the back of the neck. (See Fig. 289.)

Bandages used for the trunk of the body are represented in Figs. 290 to 296. A bandage which supports the breasts should be a large three-cornered cloth, of which the middle part is put under the breasts, and the two large ends are tied (or fastened by a safety-pin) at the back. The corner of the cloth should then go over one of the shoulders, and join to the other part which is already fastened at the back. (See Fig. 290.) Care should be taken that the cloth is laid flatly over the shoulder, so that a pressure on the neck may be avoided.



Fig. 290. A three-cornered bandage for the breasts.

Another sort of bandage for supporting the breast (especially when one breast only is affected), is a large three-cornered cloth cut out as explained in Fig. 285. The middle of the cloth should support the breast, the two long strips tied at the back, and the two shorter strips are then drawn towards the back, one of them passing under the shoulder-blade of the affected side, and the other over the shoulder at the other side; when meeting thus they are carefully fastened. The



Fig. 291. The suspensory bandage for the breast.

point which was left goes over the shoulder of the affected side, being fastened at the back with the other pieces. (See

Fig. 291.)



Fig. 292. The single bandage (in the shape of the figure 8) for one shoulder.



Fig. 293. The single bandage for both shoulders (in the shape of a figure 8).

A bandage which is formed like the figure 8 is used for a broke shoulder-blade or collar-bone. It should be from three to four yards in length, and one-and-a-quarter to one-and-a-half inches in breadth. (Comp. the article "Bones, fractured" p. 854.) It can be made of either a piece of linen or flannel, which is rolled together after having been well moistened. The fixing should be commenced under the shoulder-blade of the side not affected, the bandage then turned over the chest or back, and so contrived that it passes over the shoulder of that side which is affected. It now passes under the arm, and back again over the shoulders, to the place where one first commenced. This twisting is repeated several times, care being taken that each piece lies half-way over the other, like tiles on a roof, and after twisting the bandage several times round the breast-bone, it is fastened by a knot.

A single bandage (in the shape of the figure 8) should be applied to the shoulder and part affected in cases where no bone is broken, and where only the softer parts of the body are diseased. This bandage

is represented in Fig. 292. It is made of a long three-cornered cloth, folded like a cravat, the middle of which is placed under the shoulder-blade of the affected side; the ends then go several times over the shoulder on the affected side, over the breast-bone, again over the back of the collar-bone, where the ends will be tied.

Should a bandage for both shoulders be required, two three-cornered pieces will be needed, which should be folded

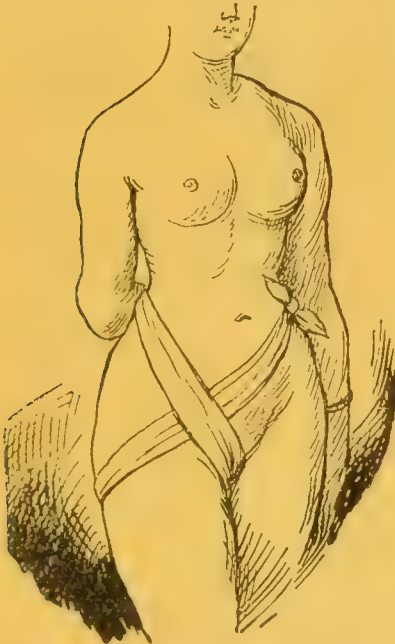


Fig. 294. The single bandage for the region of the perineum.

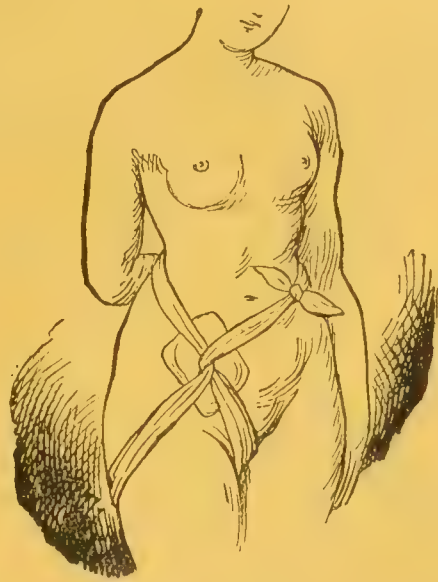


Fig. 295. A sling bandage for the region of the perineum.

like cravats. They are applied as follows: The middle part of a cloth is laid on one shoulder, one end is drawn over to the back, the other end, which is drawn to the front, is then made to pass under the armpit and meet the first end, so that they may be laid together on the back. The other cloth is applied in the same way, except that a kind of sling is made of one end near the shoulder-blade; the other end is then slipped through the opposite bandage, after that both sides are tied together, as in Fig. 293.

A single bandage (which is like the figure 8 when fixed) will be found very useful when a bandage is required for the region of the perineum. It is applied as follows:

The middle of the three-cornered cloth is folded like a cravat, and is placed on the upper part of the thigh, but towards the back. One end of the cloth is then drawn towards the front, while the other is made to pass between the legs. The cloth ends thus crossing at the perineum should be drawn in the direction of the hip of the unaffected side, and tied in a knot, as shown in Fig. 294.

Or one could make a sling of this bandage by twisting it in the middle. The ends should go in different directions (one end round the back and the other round the front), and should meet at the unaffected part and tied. (See Fig. 295.)

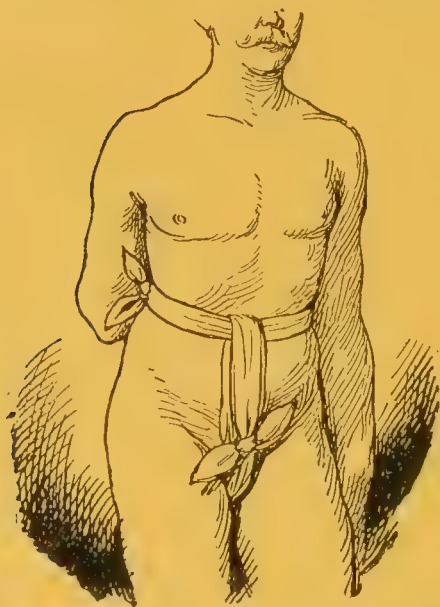


Fig. 296. The binder in the shape of a T which is made of two cloths.

Another bandage is in the shape of the letter T when it is fixed, and will be found useful in cases where such a bandage is required for the region of the perineum. It requires two pieces of cloth, which are folded lengthwise, and of which one piece is tied round the waist. The second cloth is now taken, slipped through the waistband at the back, and made to pass between the legs. One end will now be slipped through the waistband at the front, and drawn downwards, so that both ends may

be fastened or tied in a knot. (See Fig. 296.)

For further particulars concerning the uses of bandages, refer to the articles on "Bleeding," "Fracture of Bones," "Whitlows," and "Wounds."

Bandage, Abdominal. (See Index.)

Bandage, Chest. (See Index.)

Bandaging, First Aid. (See "Bones, fractured.")

"Banting Treatment" is the name given to the method of reducing fat, prescribed by the Englishman Banting. Mr. Banting, by following his own treatment, not only lost superfluous fat, but also gained strength.

His method consisted in the careful avoidance of all kinds of food containing fat, flour, or sugar. At the same

time, the cure has its great disadvantages, and is not by any means suitable for everybody. A full description of the treatment lies outside the sphere and purpose of this book.

Barrenness or Sterility.—A woman is destined by nature to become a wife and mother, that is, to be fruitful. An unfruitful, childless woman, therefore misses the natural object of her life. The cause of childlessness may be on the part of the man as on that of the woman. In the latter case it is called barrenness, or sterility. It is not generally easy to ascertain whether the cause of sterility is in the man or in the woman. The old notion that the woman is alone the cause of barrenness has disappeared long ago, for about a fourth part of the causes of sterility can be put on the man's account; malformations of the urethra, stricture (or narrowness of the urethra, inflammation, or any other affection of the prostate, phimosis), or narrowness of the foreskin, and other abnormalities that hinder the proper injection of the vital fluid into the womb. Besides this, bodily weakness, weakness of the sexual nerves (sexual neurasthenia), etc., may form the cause of barrenness on the man's part. The causes of barrenness in women may lie in diseases of the womb, of the ovary, of the neck of the womb and of the ovarian tubes, also in an enlargement of the hymen, in constitutional affections (such as tuberculosis, scrofula, rickets, syphilis, anæmia, chlorosis, corpulency, etc.). Mental influence, such as aversion or dislike to the husband, grief and care, may also be the cause of it.

The treatment for barrenness in either husband or wife demands a careful study, whether the cause be mental or otherwise. This is most essential, in order to remove as far as possible the sterility. It is obvious that special instructions cannot be given here about this, as cases differ greatly.

Bath, Arm and Elbow. (See Index.)

Bath, Arm Vapour. (See Index.)

Bath, Body. (See Index.)

Bath, Bathing Apparatus, Bathing, and so forth.
(See Index for each special thing wanted.)

Baths, Hot Full, Sitz, Hand, Foot. (See Index.)

Baths of hayflower infusion, full baths, sitz and foot baths, warm baths according to Kneipp. (See Index.)

Bath with Oat Straw, according to Kneipp. (See Index.)

Bath, Portable. (See Index.)

Bath, River. (See Index.)

Bath, Russian Vapour. (See Index.)

Bath Speculum.—When using a complete bath, that is, a bath for the whole body, or a sitz bath, in order to attain a continual and thorough washing of the vagina and the neck of the womb, women use the so-called bath speculum, or vaginal mirror. (See Fig. 285.) Its walls are pierced by numerous holes. The introduction of this instrument needs care and gentle rotation, and is then perfectly painless.



Fig. 297. Bath Speculum.

Baunscheidt's Cure.—When the celebrated painter, Franz von Degregger, of Munich, was brought, seriously ill, to Bozen in the South Tyrol, in the autumn of 1871, in order that he might recover some measure of bodily health in the mild climate of that district, he was cured in a most remarkable manner of a chronic disease that he had thought entirely incurable. For over two years he had been a victim to chronic rheumatism of the joints, from which he suffered violent pains, as well as being completely lamed. He had so completely lost the use of both legs, that he had to lie continually on a sofa, even when painting. This chronic rheumatism had been pronounced by all the medical authorities he had consulted entirely incurable, and all the resources of medical science had been applied in vain for the alleviation of his sufferings.

One day, a deputation of the inhabitants of Delfach, in the Pusterthal, waited upon him in order to solemnly present the freedom of his native city (Ehrenbürger-Diplom), "Franzl" had now become so famous. It was a great grief to these men to see the artist, then only thirty-six years of age, in so sad a condition; and when they went away the old peasant, "Doctor" Obersteiner, remained behind, standing by the artist on his couch of pain, and said:—

"Thou 'Franzl,' I think as how I could help thee."

Defregger thought matters could hardly be worse than they were, so, without any hope, he let the "Doctor" Obersteiner begin his treatment after the method of Baunscheidt, and in fourteen days the celebrated artist was cured and freed from total lameness of both legs, which has lasted for full two years, and had defied all the curative efforts of scientific medicine.

How had this come about? Had a miracle happened? In order to answer these questions, we must, in the first place, make ourselves acquainted, once for all, with the nature of this entirely unique method of cure. Its inventor was a mechanic, now dead, named Karl Baunscheidt, in Endenich, near Bonn, on the Rhine, and his discovery first saw the light as the result of one of those curious accidents to which so many great events and great inventions can be traced. Baunscheidt suffered from rheumatism in the hand. One day he was sitting unoccupied in his room at the open window. He was resting his suffering hand on the table. There were some gnats flying about, and some of them settled upon the afflicted hand and made themselves quite at home there. Baunscheidt frightened them away several times, but at last, as the little insects continued to come on to his hand, he let them remain there. The gnats stung him; but scarcely had they done so than Baunscheidt became conscious of a sudden and almost immediate change in the sick hand. The pain had almost flown away with the gnats, and Baunscheidt, as an attentive observer of nature, could not allow it to remain long hidden how this curative change had come about. The gnats taught him a secret of how, in a simple and natural manner, the matters that cause disease can be removed from the suffering parts of the body without any loss of blood. Through the stings of the gnats small openings had been made in the skin, openings which were just large enough to allow the escape of the gaseous, pathogenic, or disease-producing substance.

On the other hand, these openings were not large enough to be injurious to the life of the blood, by interfering with its circulation, while they were yet sufficiently large to penetrate to the finest blood vessels (the capillary, or hair-like vessels) and the nervous tissue of the skin, and by means of the mechanical stimulus thereto imparted, and partly also by setting up reflex action, to produce a wholesome influence both locally and on the organism generally. The stimulating fluid, which the gnats introduced by means of their stings, was not only admirably calculated to keep the tiny wounds open for a long time, but also produced a stimulated condition of the skin, which must lead to a more rapid and lively excretion of the materials provocative of disease.

With the observance of these facts, the groundwork was laid for the therapeutic treatment known by the name of

Baunscheidt. He constructed an instrument for the production of a kind of artificial gnat-sting in the skin, and invented an oil which was similar in its composition to the fluid given forth by the gnats when they sting. To this instrument he gave the name of "Re-vitalizer" (see Fig. 298). This consists of a small cylindrical hollow shaft of ebony, about six inches in length. At the upper end it broadens out into a club, out of which projects a circular surface about half-an-inch in diameter, containing thirty-three steel needles, which project about one centimetre in length. On the other side of the club is a spiral spring, which lies in the narrow hollow space of the shaft, and which projects out of the lower side of this shaft, having a handle attached to it. When the instrument is not in use, the needles do not project beyond the circumference of the club-like end of the tube. When the apparatus is to be used, this upper part of the club end is pressed close on to the skin, the spiral spring is caught hold of by the projecting handle, drawn back, and then suddenly released. This causes the thirty-three needles to strike suddenly into the skin, more or less deeply, according to the force employed. There is, however, no appreciable feeling of pain caused by the punctures, because the needles immediately spring back after their impact, moreover, there is no bleeding whatever from the punctures.

The composition of the oil (*Oleum Baunscheidtii*) its inventor kept secret, and the recipe for this oil was, after his death, only communicated to his family on the condition of their keeping the secret, and retaining it as hereditary property in the family.

By the application of this instrument on the human skin, there at first arises a local effect, viz., a relaxation of the epidermis (our outer skin which protects the real skin); a slight wounding of the dermal tissue, or the true skin itself; an increased circulation of blood through the skin, and heat,



Fig. 298. Baunscheidt's "Re-vitalizer."
(One-half the actual size.)

and, in consequence, an increased nervous activity and an inflammatory reddening. The oil serves to enhance and to keep up these phenomena. It is rubbed in, and causes an inflammation of the skin and a formation of pustules. These pustules heal after from eight to ten days. Then, in the case of chronic diseases, there follows another application of the treatment, and this process is repeated until the malady is cured. In acute states of disease the punctures are made once daily, and, in severe cases, several times a day. Apart from the local treatment, the back, and sometimes also the calves and abdomen, have to be punctured. Through the mechanical excitation of the needles, and through the thermic excitation of the oil, pustules arise, as I have already said. These pustules are the result of an inflammatory affection of the glands of the skin. When matters run their normal course, there arises in the inflamed skin, on the ground where there are no pustules, a reaction, and an increased activity, which is intended to restore the normal condition. This reaction is similar to that caused by other exciting influences affecting the skin, as, for instance, from the application of cold water in various forms to the skin, by rubbing, massage, etc.

We already know that the majority of chronic diseases arise from disturbances of the metabolism (or the system of assimilation and conversion of food into living tissue for the body, and waste, or excremental supply, and so forth), and that these disturbances in turn take their origin from an accumulation of foreign matters in the interior of the body, and in an alteration of the normal proportions, or relations, of the constituents of the composition of the living substance of the body. The disturbances of the metabolism are, in part, the result of excretory organs (that is, those organs of the body whose function is to get rid of waste or poisonous matters, the skin, the lungs, the bowels, and the kidneys) performing their functions imperfectly, on account of their great superficial extension. The skin is that one of the excretory organs through which it is easiest to influence all the others, and to excite them all to increased activity in the getting rid of waste matters and the superfluous materials left over after the conversion of food. By means of a beneficial stimulation of the skin, such, for instance, as takes place in the application of the method just described, not only is the skin excited to greater activity itself—a matter of very great importance—and spurred on to get rid more rapidly of all

disease-producing materials, but at the same time it exercises a wholesome and improving influence, by means of the reflex action of the nervous system, upon the entire organism, and upon every single one of its organs; thus, of course, also upon the other excretory organs. As the reader already knows, there are under the skin innumerable fine networks of nerves, which serve to connect the nerve ends that give the power of sensation and feeling with the central station of the nervous system, i.e., the brain, and again from here are in communication with the rest of the nervous system.

Now we are able to explain how it was that the painter, Franz von Defregger, was relieved of his lameness by the application of the "Re-vitalizer." The violent pains from which he suffered during the continuance of his chronic rheumatism of the joints, lay in the joints and in the membranes covering the tendons, from which there is a constant exudation into the sheaths of the nerves and the tendons. The nerves had been paralysed through the pressure exercised on them by the matters exuded, the counter-irritation produced by the application of the "Re-vitalizer," and the congestion of the skin, were, together, sufficient to draw off the blood from the suffering parts, to favour the process of resorption, and, through the close connection that exists between the circulation of the blood and the nervous system, so beneficially to stimulate the functions of the nerves as to remove the paralysis. In this way we can generally explain the action of Baunscheidt's, or The Exanthematic Curative Treatment. A wholesome alteration of condition in the nervous and circulatory systems is produced, which permits the whole body to recover its health.

Space will not allow me here to describe fully the treatment itself, and the diseases in which its application has been proved to be exceptionally effective, or to state in detail on what parts of the body the "Re-vitalizer" should be used in each of the several forms of disease, nor the probable length of time required for the cure in different cases, and so forth. Although this, no more than any other form of treatment, is a sovereign remedy for "all the ills that flesh is heir to," yet it has very many advantages. Among these the following may be enumerated:

Simplicity, cheapness (which especially permits the application of the "Re-vitalizer" treatment in every household, and even by persons in the most modest circumstances),

effectiveness, as well as complete absence of all danger in its use.*

Beauty, Care of.—"The surest way to grow ugly is to neglect your health," says Gabriel Prevost, and it is true. The possession of any beauty, and maintaining the same, are based simply and solely on rational care of the health. The ancients (our teachers in this respect, though they knew nothing of bacilli) imposed upon their candidates, of both sexes, who were to excel by their beauty, a severe hygienic regimen and manner of life.

Those persons who were "trained" to become beautiful had to deny themselves all animal food and alcoholic beverages. But they took one or two steam baths a day, followed by massage, cold friction and rubbing down, and were then anointed from head to foot with oil or fragrant ointment. They had also to adopt a judicious and properly-combined regimen. They had also to alternate action and repose, and to be a great deal in the open air. This programme of the ancients, for acquiring and maintaining beauty, is valid now-a-days. Only by taking care of the health can we obtain health, the first condition of bodily beauty.

Bed. (See Index.)

Bedroom, Situation and Arrangement of. (See Index.)

Beer.—In view of the widespread belief that beer is a valuable food, it is of economic importance to state that the nutritive value and price of beer are tremendously out of proportion with each other. Professor Strümpell, of Erlangen, expressed himself as follows on this subject, at the sixty-fifth meeting of the "German Naturalists' Association," in Nuremberg: "For a shilling the Bavarian workman obtains eight pints of beer; this contains fully 240 grains of carbohydrates, and scarcely 42 grains of albumen. For the same amount of money, however, he receives, in the form of bread, at least 2,000 grains of carbo-hydrates, together with 250 grains of albumen. Thus the cheapest beer is, as food, eight times as dear as bread, and still dearer in relation to other kinds of food, such as potatoes. In North Germany the relation is still more unfavourable, on account of the higher price of beer. Hundreds of thousands carry on a thoughtless waste

* The Baunscheidt method has been recommended, and declared to be effective by many of the most intelligent physicians in Germany.

of money through their beer drinking. In Bavaria, for instance, workmen with incomes of three shillings a day spend sixpence a day on beer—that is to say, one-sixth of their incomes. Nor are these men by any means drunkards, but highly respectable people, who only follow the universal custom of beer drinking, and take it as a matter of course. The same applies to minor officials and mechanics. Moreover, the alleged beneficial action of alcohol, in preventing waste of albumen in the system, is by no means always present. It would, indeed, appear that there is sometimes even a slight increase in the decomposition of albumen.

Beverages, Alcoholic. (See Alcohol.)

Bile. — Bile, in fresh condition, is a clear, thin, or clammy, mucilaginous, greenish-yellow, particularly bitter fluid, with a weak alkaline reaction. It is formed in the liver, and flows through the bile ducts (tiny passages running between the cells of the liver and the surrounding capillary vessels, that collect the bile produced by the liver) in the great biliary duct, and from this into the duodenum, where it mixes with the mass passing in from the stomach.

Bilious Fever is a feverish gastric condition, with an abnormally increased accumulating bile. It is caused by chills, errors in diet, depressing emotions, etc. The symptoms are swelling of the lower part of the body, sickness, vomiting bile and slime, constipation alternating with diarrhœa, bitter taste in the mouth, yellow coated tongue, yellowish whites of the eyes (conjunctiva), fear, excitement, restlessness, delirium, weak, hard, quick pulse, headache, heat, yellow skin, etc.

The treatment is set forth in I., Part 34., under “Treatment of Fevers.”

Binder-Belt. (See Index.)

Birth. — In the present generation a natural birth, i.e., one accomplished without any injury to either mother or child, simply by Nature herself, is rare. The fault lies partly in our unnatural relations as a whole, and partly in the fact that women, almost without exception, from the time of puberty, do not pay sufficient attention to the hygiene of the abdominal organs. The consequences of this are apparent in pregnancy, and at confinements. For a favourable confinement a woman must have a healthy and strong constitution, and a perfect formation of the generative organs. There must also be a normal duration of pregnancy, good health

at the time, suitable conduct of the mother and of those assisting at delivery. Every stage begins with pain, and there are many stages. The first symptom is a feeling of great discomfort, with drawing pains in the loins and increased urine. Then the premonitory pains make themselves felt—pains in the abdomen, which recur more and more frequently, and increase in intensity. Women whose first baby is expected may have these pains for hours, even for days. The pains increase. The mother is restless, leaves her bed, walks up and down, and tries to support her body with her hands. She suffers from diarrhœa, or from sickness.

Gradually the premonitory pains die away, they serve to open the mouth of the womb. The full membrane presses into it, and often tears the womb a little, and in consequence the vaginal secretions show streaks of blood. Between the throes there are intervals free from pain.

The mouth of the womb opens gradually, the pains increase, the membrane presses forward and stretches more and more until it bursts. The so-called opening period comes to an end when this occurs. When the water has run out the actual labour begins. There is first a long interval free from pains, but then they set in rapidly. They are called labour pains. They are greater, and last longer than in the preceding stage. They force the child forward, so that a part of it, generally a portion of the skull, is visible. Every additional pain brings it more forward. The perineum is stretched to its furthest extent, and looks like a thin seam. The head of the child projects entirely, after a particularly severe pang, and then its body, but with somewhat lessened pain. After the water, streaked with a little blood, has flowed away, the delivery is accomplished. Now comes the after-stage, in which the after-birth is expelled. If everything has gone off well, the patient is quite comfortable, and falls into a refreshing sleep.

Let us now consider the preparations for the event, upon which the favourable result very much depends. As soon as the mother feels her time approaching, she should send for the accoucheur or midwife, and see that the following are in readiness: an enema, a pair of scissors, a narrow, strong white thread, washing sponges of various sizes, chemically purified wadding, flannel, hot water bottles, olive or almond oil, a washing basin, towels and sheets, a small bath, hot water, soap, baby linen, and linen for herself.

The bed should be an ordinary one, with a horsehair cushion laid across the place where the lower part of the back is to rest. A waterproof sheet should be spread just below it, and over that a blanket, folded a good many times, to soak up the water liberated by the birth. Against the rail at the foot of the bed a pillow or footstool should be put, so that the mother can press her feet against it during her labour; on either side of it fasten a long towel, which she can grasp in either hand. The bedstead should stand out in the room, so as to be accessible on both sides. The coverings should be light woollen blankets. When the baby is born, the bed can be put right by removing the soaked blanket, and replacing it by warm cloths, and by taking away the horsehair cushions. If possible, she may be moved into a second bed, properly warmed beforehand, and pushed quite close to her own. The room should be quiet, remote from any noise and disturbance; should be dry and dark, the temperature at 66° to 68° F., and there should be thorough ventilation. The patient should be warmly clad, but not tightly; her hair should be let down, gently combed, and arranged for sleeping. She should be very careful to guard against constipation or retention of urine, and, to prevent the former, should use an enema at 81° F. She should banish all care and anxiety, by remembering this is the crowning point of her life and the lot of millions. Eat stewed fruit, or gruel, or drink some milk sweetened with sugar, and assume any position she likes. She should prevent the midwife or accoucheur making any examination of the sexual organs during her pains. Any violent pressure or stress during a pain must be stopped. Their action should be gradual, and not very unlike ordinary evacuation. She can seize the towels fixed for her support, if she grasps them tightly, and at the same time presses her feet firmly against the cushion at the bottom of the bed. She should be informed beforehand of the bursting of the membrane, to avoid being startled. If possible, catch the water in a shallow vessel, to prevent the bedclothes being soaked. The best position is sometimes on the back, sometimes on the side. But she must never bend the back inward, or raise the loins, or put the head too far back, or toss about on the bed. When once the head is projected, the pains must not be helped on, and the mother should place herself under the midwife or accoucheur's direction. When the after-birth has taken place (which should never be

brought about mechanically), and the wet bedclothes are removed to be replaced by warm dry ones, the mother should be gently lifted by other persons, and should well stretch her limbs and keep them close together. Should she be moved into another bed, they should be loosely tied together. If she feels thirsty, she may take a little warm weak fennel, or lilac tea.

At the beginning of this article I have described the natural course of a confinement. But sometimes, soon after delivery, irregularities will set in owing to circumstances to which I have already alluded. Quite apart from an unnatural birth, in which the child's size must be reduced before birth, as disproportion between mother and child renders a delivery impossible, or from cases where it has to be turned in order to put it into the right position, which can only be done by a surgeon, cases may occur where suitable intervention is imperative, to help the birth, or stimulate the mother after the birth has occurred. Mechanical means must then be applied. As a fact, it is easier, as I have already said in speaking of massage at these times (p. 698) than bringing matters to a crisis by using the forceps, which are to supplement the defective expulsive power of the muscles of the womb. This proceeding is at variance with the principles of Natural Treatment, which says, "Never touch the internal sexual organs, either during or shortly after a confinement. There is danger, for, apart from the risk of infection, a strong pull or pressure on the child's head might injure both skull and brain, or even stretch the vertebral column. Therefore, if the pains are too weak, or their power exhausted, apply (p. 696 and p. 697) massage of the uterus. To recapitulate: let the mother lie on her back, let the assistant place herself at the head of the bed, and surround the base of the womb with both hands, in such a manner that both thumbs are on the front surface of the womb, and the other fingers spread out, if possible, on the back surface. Now the point is to bring about contraction of the womb. If this succeeds, and the uterus becomes as hard as a stone, increase the downward pressure, which must stop when the pain does. But hydropathy is very beneficial at these times in strengthening the action of the labour. Give the mother sitz baths, at 95·5° F., for five to ten minutes, alternately with some at 82° to 86° F., for three or four minutes; or apply Kneipp's knee affusion vigorously, when the blood vessels will con-

tract, and the womb, doing the same, will work satisfactorily.

Sometimes after birth violent hemorrhage occurs, and is attended with great danger. It may be caused either by irritation of the inner vessels, when the head forced its way through, or by weakness of the womb, which is powerless to contract on itself. This powerlessness often comes on after a quick confinement, or if forceps have been used. It is another reason why the pressure described above should be used; it is indeed slower, but more certain, and free from danger. Yet this feebleness is often experienced in apparently easy confinements. The following description of the physiological "status causæ" may serve to make my meaning clear. The after-birth is composed of the membranes of the ovum and the placenta. The membrane is affixed to a part of the inner wall of the womb until the birth, when it loosens. But the part in which the maternal blood vessels and the membrane communicate now becomes a large wound, with gaping vessels, from which the blood would issue in floods if the womb did not at once contract these vessels, and prevent hemorrhage by vigorous muscular action.

We can now explain the cause of the bleeding that often sets in after a confinement, supposing the womb has grown weak and unable to contract. To stimulate it, carry out the massage described on p. 699, and the weak, enervated womb will soon contract and become perceptibly harder and smaller. In nearly every instance brisk rubbing is successful, especially if the base of the womb is held in one or both hands to enable the womb to contract sufficiently to stop the hemorrhage if it has come on. But mark this, until the after-birth is away, the tendency to fresh weakness and a return of the hemorrhage remains — so the sooner it occurs the sooner the danger is overcome. In this action use the Credé massage, as described on p. 698. The main point is, that when the womb is contracting, as may be seen under the ribs, a powerful brisk pressure must be applied downward, not forward. In a few minutes the after-birth will appear. The following hydropathic measures may be applied, but only secondarily, and in single cases—I say, emphatically, in certain cases only: Cold sitz baths, 54° to 60° F., for half-a-minute to two minutes (p. 521), alternated by vapour compresses on the abdomen. Cold baths of long duration (with which Dr. Pingler has achieved unprecedented success, according to

his own account), even if they have saved life apparently, must be utterly avoided, for they are dangerous to life. Hot sitz baths, 99° to 103° F., and hot injections at the same temperature, according to Dr. Thiemann, of Bremen, may be more securely used if, in exceptional cases, the massage is unsuccessful. As a precaution, it should be ascertained, after every confinement and after-birth, whether the womb is hardening. This can be done by laying the hand on it. After the mother has been washed in tepid water, and it is certain that no serious rents have been made, the thighs should be lightly bound together with a towel, and the patient left in peace. But if a rent has occurred in the perineum, which may extend far back, it must be sewn up, and covered with thick, not too dry, compresses (77° to 81° F.). Sometimes a displacement of the womb occurs in a severe confinement, or soon after, either brought about by severe strain on the umbilical cord, or a shortening of the same owing to a twist, or by an abnormal position. It may also be occasioned by convulsive after-pains, violent coughing or sneezing, soon after the birth. The base of the womb sinks into the cavity, and it may fall so far, that the mucous membrane of the base projects through the mouth of the womb.

This condition is accompanied by great weakness, severe hemorrhage, unconsciousness, great fear, sickness, cramp in the chest, convulsions, and violent abdominal pains extending on every side. It is extremely dangerous, and speedy help is necessary, for if the womb be not replaced, hemorrhage, and finally mortification, will ensue. Put the patient at once into a body bath, at 86° F., reducing it to 82° F. by carefully pouring in cold water, and then apply massage of the lower regions and the Credé grasp (p. 698). For a speedy, favourable restoration of the womb, it is advisable to remain in bed for three or four days, and to apply massage (p. 699). During her further lying-in, the mother (guided by her individual constitution and the existing state of her health) should occasionally take a mild body or half-bath, 91° to 95° F. (Further, see "Separation of the Umbilical Cord," "Pregnancy," and "Care of Infants.")

Black Cataract. (See "Eye, Diseases of the.")

Blackheads. (See "Skin Diseases.")

Bladder, Cancer of the, is rarely an independent disease, but in most cases attacks the bladder after other neighbouring organs have been attacked by cancer. The diagnosis

is particularly difficult. The hemorrhage, or bleeding, which is always present, may be traceable to other causes, as, for instance, to the presence of stone in the bladder. It is only by examining and testing the urine for the presence of particles of cancerous decomposition, that a certain diagnosis can be made out.

The hopes of cure are very small. One must therefore seek to diminish the sufferings of the patient by means of a mild and non-irritating diet, by means of compresses on the region of the bladder, and by means of light, warm trunk and sitz baths, etc. Any treatment or application that overtaxes the patient is to be entirely condemned.

Bladder, Catarrh of the; Cystitis, Inflammation of the Bladder; Flow of Mucus from the Bladder.—

This disease appears both in an acute and in a chronic form. The acute form is an inflammatory process: there is a presence of fever, and the chief complaints are pressure of urine and pains when passing water. At the beginning of the catarrh the urine is still pure, later on it becomes turbid, or muddy and mucus, sometimes also containing blood. The painful sensations extend as far as the sexual organs, the perineum and the anus, as well as to the region of the kidneys. Sometimes it amounts to cramp of the muscles, by which the bladder is closed, so that the urine cannot be passed.

The causes of acute catarrh of the bladder are to be found either in injuries which have directly affected the bladder itself, as, for instance, in the course of medical injections, the internal use of drugs, in the presence of stone in the bladder, etc., or it may arise from diseases of the neighbouring organs of the bladder, of the urethra, and of the prostate. Also, colds of the abdomen and the feet, as well as partaking of fermenting drinks, such as new brewed beer, may bring on acute catarrh of the bladder. The course of the trouble is generally short, and the troubles vanish rapidly under the influence of rest and a non-exciting, strictly vegetarian dietary, accompanied by copious water drinking and the application of a proper hydropathic treatment, in which stimulating thick compresses, applied to the region of the bladder at from 78° to 82° F., friction sitz baths of from ten to sixteen minutes' duration, trunk baths of 86° F., sitz baths, 86° to 88° F., in combination with hot sitz baths, vapour sitz baths and vapour foot baths; stimulating packs also, for the lower

part of the back and loins (sacral region), and stimulating packs of the calves during the night, play the chief role. In cases of violent pain, vapour compresses every five to ten minutes in the region of the bladder.

The chronic form of catarrh of the bladder develops either from neglected or improperly-treated acute catarrh, or it may arise independently, in which case it is unaccompanied by feverish symptoms, and the pains are generally absent. The symptoms are characterised only by pressure of urine, the secretion and excretion of albuminous tough mucus, a feeling of tension and heat in the region of the bladder, and pain when water is passed. In spite of the pressure, only a very little water is passed. In the further development of the disease the general health suffers very much. Emaciation and weakness set in, the digestion is disturbed, and consumption alternates with diarrhœa. This condition may last for months, and even for years, and may eventually lead to disease of the kidneys and to the formation of ulcers. In addition to the causes already detailed, in speaking of the acute form of the disease, which may also result in an independent chronic disease coming on, a frequent cause of chronic catarrh of the bladder is a long-continued and neglected, or improperly treated case of gonorrhœa. Neglect in emptying the bladder, sedentary occupations, residence in damp climates, sudden changes of temperature, etc., are also conditions favourable to the origin of bladder troubles of this kind.

The treatment of chronic catarrh of the bladder is not essentially different from that which is suitable for the acute form of the disease. The chief difference is, that one must, in addition, apply stimulating complete and three-quarter packs, and washings of the whole body every morning.

Kühne's friction sitz baths have proved particularly effective. They should be taken three times daily, in combination with two vapour baths a week; also Kneipp's night stool vapour, with shave grass infusion. Also the application of four-fold compresses, saturated with hay flower infusion, four or five times a week; three leg shower baths, one back shower bath and two knee shower baths, and three hip baths a week, are indicated as tending to cure in some cases.

The diet must be strictly vegetarian, and even then must consist chiefly of mucilaginous foods and fruit (especially a large number of grapes).

Bladder, Cramp of, is sometimes an accompaniment of other maladies of the abdominal organs (of irritated conditions of the female sexual organs, especially of the womb, the rectum, etc.), and is sometimes an independent disease arising from chills in the abdomen (such as are caused by sitting on damp and cold ground), chills to the feet, emotional excitement, partaking of newly-brewed beer — or it may be a purely nervous affection. The cramp becomes apparent by violent pains in the region of the bladder, which, as a rule, arise quite suddenly, and without any warning, and which vanish with equal rapidity, but which may last for a considerable time. The pain extends from the perineum to the anus, then becomes less violent, most frequently to begin all over again. This pain is accompanied by a continuous desire to pass water, while, during the attack, the urine can only be passed a drop at a time. The cramp is also often accompanied by pressure in the bowels. When the passing of the urine has been entirely stopped, there is generally, after the attack, a very plentiful flow of urine, the urine being clear and bright.

The treatment must be directed, before all things, to the application of damp warmth in the form of application of vapour compresses, hot shave grass and hay flower compresses, hot sitz baths,* night stool vapour baths, followed by cool sitz baths, partial washings, and so forth. After the attacks have become weaker and weaker, and finally left off altogether, the patient should take a trunk bath at from 82° to 86° F., or a stimulating three-quarter pack, in combination with a subsequent wet and dry friction. In many cases the General Tonic Treatment should be adopted.

Bladder. (See “Digestion.”)

Bladder, Diseases of. (See Index.)

Bladder, Hemorrhoids of. (See under “Hemorrhoids.”)

Bladder, Hemorrhage of the, may be produced by various causes. It is not at all easy to decide whether the blood, the matter, or coagulated blood that comes away with the urine has really come from the bladder or from the kidneys.†

* The so-called “increased warmth” sitz bath, which begins with 95° F., and, through the addition of hot water, is gradually raised to 106° F., might also be recommended in most cases. It can be given several times during the day.

† The bladder lies between the rectum and the front wall of the abdomen, at its lowest point (see Fig. 1), and serves, as everyone

The characteristic sign of a hemorrhage of the bladder is, that the blood is not so closely mixed with the urine as it is in the case of bleeding from the kidneys. Ulcers, injuries consequent upon external influences, or through the presence of sharp-edged stones in the bladder, or other causes, may give rise to bleeding or hemorrhage of the bladder. The first and chief palliative treatment consists in antiphlogistic cool compresses (that is to say, cool compresses calculated to counteract inflammation) of from 68° to 72° F., applied to the region of the bladder, and removed the moment they begin to get warm, combined with revulsive (or drawing away) packs for the legs, or with reclining vapour baths No. 4, sitz baths of 84° F., by trunk packs of half-an-hour's duration, and of a soothing nature, gradually cooled down to a temperature of 72° F. by the gradual pouring in of more and more cold water. The genuine Curative Treatment, however, must be such as I will describe in the following article, under the heading "Bladder, Catarrh of the." (See also, under "Hæmaturia, or Urine, Blood in the.")

Bladder, Paralysis of the, sometimes arises from diseases of the bladder and its neighbouring organs, and also sometimes as a consequence of disease of the brain or the spinal marrow; from a severe feverish disease; from a general weakness or decrepitude; from the influence of poisonous drugs, and so forth.*

The symptoms are as follows: The paralysis of the muscles which serve to close the bladder cause a continuous dribbling of urine, for as soon as the bladder is filled the muscle is no longer capable of closing the entrance to the urethra. Meanwhile, if the muscle of the bladder that controls the dribbling of urine is completely paralysed, there is no more flow or excretion of urine at all. The feeling of accumulation of urine is obliterated, for the bladder possesses a very great capacity for extension, and its being filled to excess need not necessarily cause pain or produce the desire for emptying it. The full bladder then often extends right up to the navel. This is by no means a safe condition, especially in the case of unconscious patients in a high state

knows, to accumulate the urine which is constantly flowing from the kidneys, and to hold it until the proper time for it to be emptied out.

* The long and continuous withholding of urine in consequence of false modesty, or of mistaken social ideas, is a very frequent cause of paralysis of the bladder.

of fever, where, in consequence of the non-observation of the retention of the urine, on account of its painlessness, no efforts are made to relieve it.

In cases of pressing danger, when the bladder is over-full, and the application of friction sitz baths, taken with the coldest possible water, or of cold sitz baths, eight or ten seconds long, or of cold hip baths of from half-a-minute to one minute's duration, or of a hot interchangeable sitz bath, have produced no results, then, in order to avoid the bursting of the bladder, the introduction of a catheter in the hands of a skilled surgeon is necessary. When the danger is over, then and only then can one adopt proper curative treatment, and then one should adopt the treatment that I have already recommended in the case of catarrh of the bladder. This treatment is then advisable in all cases of paralysis of the bladder. In addition thereto, an application of massage in the form of kneading and pressing in the region of the bladder and of the perineum, cold douches on those parts, as well as the Cycle of Movements No. 6 of the Simple Active Movements of the Hygienic or Curative Gymnastics: for the rest the treatment must direct itself to the removal of the primary disease. The dietary should be a vegetarian one, and for the most part dry. Asparagus, parsley roots, horseradish, etc., should be partaken of in abundance.

Bladder, Rupture of the, arises in consequence of external influences, such as a blow on the region of the bladder when the bladder is full, a fall from a very great height, and so forth. More rarely it arises through an excessive extension of the bladder, in cases of restrained evacuation of the urine. It produces very threatening symptoms indeed. The patient experiences the feeling of being torn in the lower abdominal region, suffers from the most violent pains, loses consciousness, and cannot escape a severe attack of peritonitis. ("Inflammation of the Abdomen or Peritoneum.")

The treatment of rupture of the bladder must be entrusted to a very experienced surgeon. The peritonitis, or inflammation, may, however, be treated by local soothing thick compresses and general fever treatment. The termination of rupture of the bladder is, in very many cases, fatal.

Bladder, Stone in the, generally consists of small stones which have reached the bladder from the kidneys together with the urine. Here one of two things takes place—either the stones increase in size, through the further deposition of

the uric salts (uric acid crystals), when they may become any size, from peas up to that of a hen's egg, or they retain the form of small grains, and then are found in large numbers, as gravel in the urine. When the larger stones are developed, they are either firm and as hard as a stone (in which case they consist of oxalate of lime and of uric acid salts), or they are soft and easily rubbed into pieces, and in this latter case their composition consists of phosphoric acid salts.

Men suffer much more frequently from stone in the bladder than women. The symptoms, especially of the complaints which cause the presence of stones in the bladder, consist, for the most part, of pains in the region of the bladder which are brought on by any shaking of the body, as, for instance, by driving over an uneven road in riding, etc., as well as in passing water, and which subside when the body is at rest. Also, urine containing blood may be passed through any violent shaking of the body. In many cases, in passing water there is an interruption of the stream, which, on changing the position of the body, again leaves off.

"Prevention is better than cure." One should live a natural life, and not give way to dissipation of any kind; take regular daily exercise, and take great care to keep the bowels regular and the action of the skin in perfect order, so that perspiration is never checked. The treatment of stone in the bladder demands a strict lowering cure, or a Kühne's cure. Also, by means of an application of Kneipp's pack shower baths and the use of warm herbal sitz baths, etc., stones of considerable size are often brought away. Massage of the region of the bladder, and nightly packs on the sacral region, that is to say, on the lower parts of the back and of the loins, are to be recommended. The diet must be vegetarian, much fruit and green vegetables being partaken of; in many cases one may also allow the patient to partake of lean meat.*

Bladder, Weakness of the, is characterised by a sensitiveness and a frequent desire to pass water. The bladder will

* In most cases of troubles of the bladder, and also in troubles of the kidneys, a vegetarian dietary is specially to be recommended, in order to reduce the excess of acid in the urine, which is chiefly formed by a flesh diet. For this reason, rice, milk, custards, milk soup, oatmeal gruel, sago soup, cauliflower, carrots, strawberries, raspberries, cherries, melons, grapes, fresh cucumbers, lemons, &c., should specially be recommended.

not bear being very full, and if it be not immediately emptied, the patient experiences pain in the region of the bladder. The excessive sensitive weakness of the bladder is frequently an accompanying symptom of general weakness of the nerves, of hypochondria and hysteria. It is a pronounced nervous phenomenon, and it is frequently found in those individuals who have lived a life of sexual excess. In those cases only general treatment, and a strengthening of the whole organism, and especially of the whole nervous system, is of any use. The rules of the Tonic or Strengthening Treatment are to be followed, and cold sitz baths of short duration, light and air baths, and so forth, are to be taken. In cases of hypochondria and hysteria, one must direct the treatment to the removal of these diseases.

Bleeding of the Rectum. (See "Hemorrhoids.")

Bleeding.—By bleeding is understood a flow of blood from the opened blood vessels, but one can only regard as "bleeding," that outflow of blood which, when examined under the magnifying glass, still contains complete blood corpuscles. In any other case it is a diaphoresis, such, as for instance, is the normal menstrual process, our consideration here being only and exclusively to deal with external bleeding caused by wounds or injuries, in the case of which the first and foremost task is to stop the bleeding as quickly as possible, in order to avoid too much loss of blood. The kind and the amount of danger of the hemorrhage or bleeding varies very considerably, according to the kind and size of the blood vessels which have been opened. If the blood flows slowly, and in a small quantity, out of a wound, then it is only a small blood vessel or capillary that has been opened. If, on the contrary, dark red blackish blood flows evenly out of a wound, and if the outflow is increased by pressure towards the centre, then it is a large vein (Fig. 299) that has been injured. If, however, quite bright red blood spurts intermittently, in a strong stream, out of the wound, then it is an artery that has been opened, and there is the greatest danger to life. (See Fig. 300.) When a deep-seated blood vessel has been injured, the great hemorrhage that occurs at first then leaves off quite of its own accord; the same happens in the case of small hemorrhage arising from injured capillary vessels, or from the veins. If one exercises pressure upon the wound, or presses the edges of the wound together, the opening of the injured small veins closes up, and a coagulum,

or clot of blood, is easily formed, which provides the natural means of closing the wound. If, on the other hand, in the case of varicose veins (p. 35), then one must immediately, and before anything else, remove the direct cause, which generally consists in the pressure of an over-tight garter. (See Fig. 299.) The bleeding generally stops at once of its own accord, when the limb is lifted up and pressure is exercised upon the wound. When an artery is wounded (see Fig. 300), however, rapid assistance is absolutely necessary.

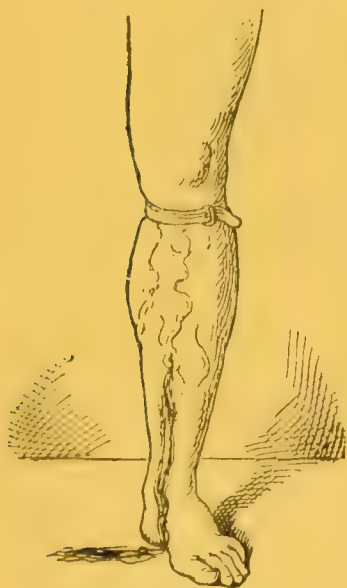


Fig. 299. Hemorrhage, or Bleeding of a Vein.

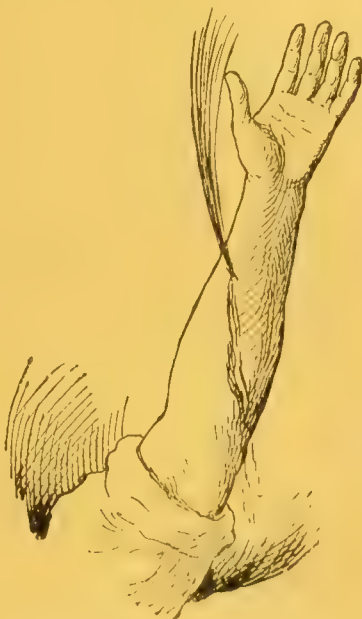


Fig. 300. Hemorrhage, or Bleeding of an Artery.

One should at once call in a skilled surgeon. As, however, before the doctor appears, the wounded person may easily bleed to death, it is advisable to give the following rules for help in emergency: In order to check the stream of blood, one should try, in the first place, to apply very powerful pressure to the opening of the wound itself, when this is not too large. In order to retard the flow of blood, the wounded limb should at once be lifted up; the wound and the limb should then be exposed by cutting away the clothes that cover them, and one should press on to the wound a six or eight-fold linen rag, or a perfectly clean handkerchief, or such like. This is to be held firmly on with the hand, or tightly bound

on with a bandage. If this does not help at all, and if the blood still spurts forth uninterruptedly, then one should press the stem of the artery centralwards, that is to say, together, by means of the fingers, above the wound between the wound and the heart. When the wound is in the upper part of the arm, then the artery on the inner side of the arm (see Fig. 274m) is to be pressed together in the way shown on Fig. 301. One should also press together the artery of the

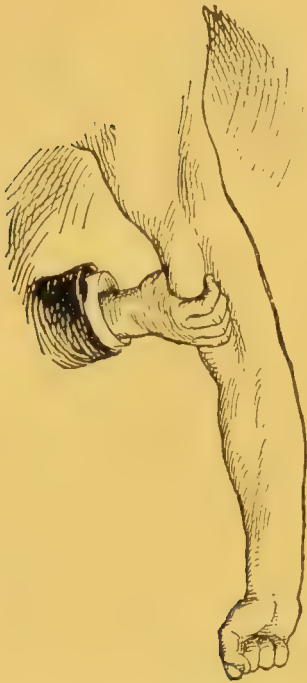


Fig. 301. Compression of the Brachial Artery in the upper arm, with one hand.



Fig. 302. Compression of the Brachial Artery, with the aid of a stick.

arm in the following way: Either a thick stick is pushed between the arm and the breast, and then the arm is tied to the breast very tightly with a cloth (see Fig. 302), or one can lay the wounded arm against the back, with its hand leant against the upper part of the unwounded arm, and then, with the help of a towel and of the unwounded arm, tightly draw backwards and downwards the shoulder of the wounded arm, so that the clavicle is drawn deeply down. (See Fig. 303).

In the neck, the common carotid artery of the throat (see Fig. 274k) can be pressed together with the hand. (See

Fig. 304.) If the subclavian artery is opened, then its chief stem must be pressed together above the clavicle towards the ribs. (See Fig. 305.) On the upper part of the thigh is an artery known as the femoral artery. It is situated on the front side of the thigh, immediately below the middle of the fold of the groin. It can be pressed together with the two thumbs by using great strength. (See Fig. 306.)

In order to stop the bleeding of this artery with the thumbs, or even with several fingers, it is necessary to exercise considerable skill, and also to possess such qualities as great physical strength, power of endurance, practice, and a certain amount of anatomical knowledge. It is therefore most advisable, when one has to compress an artery, to do so with an elastic bandage. The elastic girdle, or the elastic bandage, must, however, be all wound round on exactly the same part of the body several times, with the greatest possible tension, for a single bandage is by no means sufficient to compress the artery. On the contrary, the hemorrhage will only be increased by an unsatisfactory bandaging, for only

the veins lying on the surface will be pressed thereby, and not the arteries which one intends to reach. The hemorrhage generally ceases at once when the bandaging is properly carried out, and one takes care that the whole of the bandage is wound round in exactly the same place, for, with the elastic bandage, such a procedure increases the pressure on the artery with every turn, so that, finally, it is quite impossible for any more blood to go through the bound arteries. The correct bandaging, carried out in this way, is portrayed by



Fig. 303. Compression of the Brachial Artery with the aid of the uninjured arm and a towel.

Fig. 307. The engraving shows a tourniquet such as is in general use at the present day, with which the Emergency



Fig. 304. Compression of the Artery of Neck (carotid artery) with the hand.



Fig. 305. Compression of Sub-clavian Artery with the hand.

Instrument Cases of the First Aid Societies connected with railways, and so forth, the instrument cases of surgeons and ambulance corps in the large cities, and the ambulance waggons of all troops are provided. Ofcourse when such a tourniquet is not at hand, we must use the best means obtainable in an emergency. In such a case a pretty long linen bandage may be taken, and wound as tightly as it is possible around the same place, in such a manner that every turn covers the previous one. The end is then made fast, and the whole of the bandage is thoroughly and liberally moistened with cold water, in order that the bandage may shrink and become still tighter. (See Fig. 308.) If, however, one has a towel at hand, or a pocket-handkerchief, one should wind it loosely, folded up several times around the limb, tie the end, and then push a stick or a lath, or a key, or, in fact, any straight longish object that may be lying

Fig. 307. The engraving shows a tourniquet such as is in general use at the present day, with which the Emergency Instrument Cases of the First Aid Societies connected with railways, and so forth, the instrument cases of surgeons and ambulance corps in the large cities, and the ambulance waggons of all troops are provided. Ofcourse when such a tourniquet is not at hand, we must use the best means obtainable in an emergency. In such a case a pretty long linen bandage may be taken, and wound as tightly as it is possible around the same place, in such a manner that every turn covers the previous one. The end is then made fast, and the whole of the bandage is thoroughly and liberally moistened with cold water, in order that the bandage may shrink and become still tighter. (See Fig. 308.) If, however, one has a towel at hand, or a pocket-handkerchief,

ready to hand, between the cloth and the limb, and turn and twist it round and round, so as to tighten the improvised bandage more and more, until the bleeding leaves off. An elastic bandage, however, is in any case preferable, and it is therefore advisable, in view of our present habits of life and liability to accidents, always to have a bandage about us, and for that purpose it is advisable, both for our own interests and in those of others who may meet with an acci-



Fig. 306. Compression of Femoral Artery with the thumbs of the two hands.

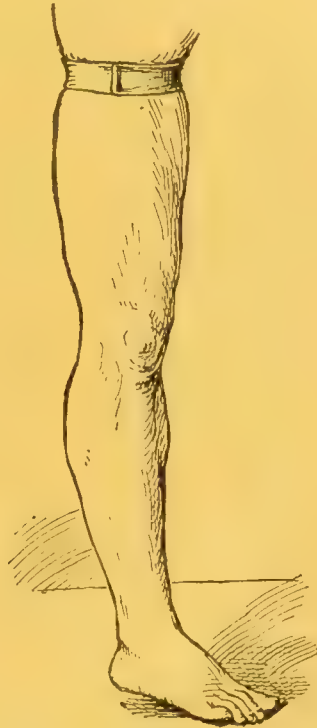


Fig. 307. Elastic constriction of the thigh. (The Femoral Artery.)

dent when one is near, to wear Professor Esmarsch's elastic braces. (Fig. 309.) The strap is made out of one single piece, which is of such a length that one can bind even the somewhat extensive circumference of the thigh so as to effectually bandage the femoral artery. In any case it will be necessary, as soon as one has succeeded in stopping the bleeding of an arterial hemorrhage, to call in medical help, for a really effectual bandaging of an artery is not only, for any length of time, extremely painful, but may even cause

cold gangrene to arise in the bandaged limb, if it remain for more than two or three hours cut off from the access of blood supply. An improperly carried out bandaging, that is to say, one that is too tight, may cause the mortification or the death of the limb, in even a shorter period. People cannot be too strongly warned against the habit of using so-called styptics, or remedies for the stopping of hemorrhage, such as iron, vitriol, collodion, with spirits of wine, gum arabic, etc.



Fig. 308. The ligation, or tying of the upper arm (brachial) artery with the aid of a damped bandage.

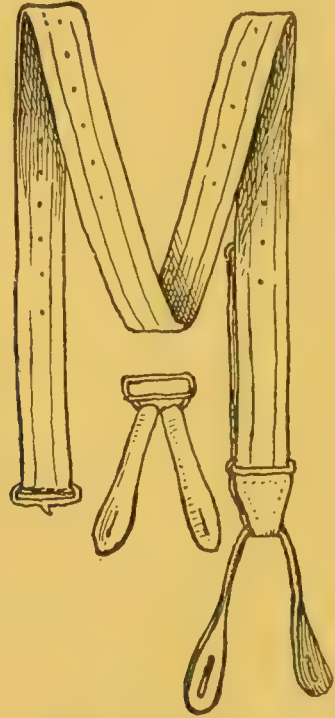


Fig. 309. Professor Esmarch's elastic bandage, made in one piece.

With these chemical remedies, as well as with any mechanical ones, such as wadding, blotting paper, sponge, etc., assuming that they are perfectly clean, one may perhaps stop small hemorrhages, but large ones certainly not. These can only be stopped by applying a bandage several times around one and the same part of the body.*

* Dr. Thiemann, of Bremen, has been able to stop hemorrhages in a few seconds, from even a perforated main artery and a varicocele, by means of hot water. The physiological working has been explained by Dr. Thiemann: Relaxation of the whole tube, stopping

Poisoned wounds require special mention, such, for instance, as arise from the bite of poisonous serpents, of mad dogs, through poisoned weapons, etc. This species of wounds requires, in the first place, also an exactly correct bandaging, in order to prevent the penetration of the poison with the stream of lymph into the heart, and in order to prevent a consequent general poisoning of the blood. Only after a successful tying up of the upper part of the wound, that is to say, centrally on the healthy portions of the body, does one turn one's attention to the removal of the poison. The procedure necessary for this purpose is described in the articles "Serpents, Poisoning by," "Intoxication," "Poisoning," "Hydrophobia," etc. (For further particulars, see also under headings "Bandages," "Dressings," "Wounds.")

Bleeding (Hemorrhages) arises from an abnormal exit of blood from various blood vessels, either in the inner cavities of the body or in their neighbourhood, or in the outer skin. (For further particulars, see under the heading "Bleeding Diseases," "Bleeding of the Lungs," "Apoplexy," etc.)

Bleeding at the Nose may arise from the most various causes—wounds, injuries following upon external or mechanical influences, the formation of tumours in the nose; feverish infectious diseases, such as smallpox, scarlet fever, etc.; constitutional troubles, which cause a disposition to rupture of blood vessels, as, for instance, the bleeding disease; scurvy, leucocythæmia (a condition in which the blood is too pale), etc. In persons suffering from congestion of the head, and from heart and lung troubles, and in persons suffering from alcoholism, etc., bleeding of the nose often sets in. Also, when menstruation does not take place at the proper time, there is often, in its place, profuse bleeding at the nose. This is often preceded by flickerings before the eyes, singings in the ears, a feeling of heaviness or giddiness in the head, itching of the nose, etc. The blood is generally of a bright red frothy appearance, and shows a tendency to rapid coagulation, so that bleeding of the nose is often soon brought to a standstill by the natural formation of a

of circulation, the forming of thrombus, that is to say, blood-clot. Cold water contracts the blood vessels too strongly; the blood column again presses strongly against the vessel, so that from both sides all rest is impossible. Therefore cold fomentations hardly stop bleeding; hot water, on the other hand, relaxes not only the tube of the blood vessel itself, but I might also say the blood.

clot which acts as a plug. A bleeding at the nose of longer duration, in which so much as a quart and more of blood may often be lost, and in which the symptoms of bleeding to death set in, such, for instance, as fainting, weakness, pallor and coldness of the skin, palpitation of the heart, dull, small, and scarcely perceptible pulse, requires speedy recourse to active means of giving relief. These consist in pouring quite cold water over the nape of the neck, the breast and the feet, the application of Kneipp's shower bath; of the "shawl" in the stimulant form, or the application of stimulating cold thick compresses to the nape of the neck between the shoulder-blades, and the simultaneous administration of cold foot and hand baths, the hands and the feet being plunged into two wash-hand basins filled with cold water, or in hot hand and foot baths at from 102° to 106° F., taken in alternation with cold hand and foot baths (see p. 541); in stimulating calf, foot and wrist packs, at the temperature of from 59° to 63° F. The one or the other mode of procedure should be adopted according to the individual idiosyncrasy of the patient. Cold fomentations, as cold as it is possible to obtain them, should also be applied to the forehead and to the nose, and cold water, mixed with a little lemon juice or vinegar, should be sniffed up the nose, while the bleeding nostrils should be filled up with moistened cotton wool.

The other means of stopping or diminishing the bleeding of the nose are pressing together the nostrils for a length of time with the fingers, in order to form a clot of blood that may act as a plug; pressing together of the common artery of the throat (carotid artery, see Fig. 274 k and Fig. 304). The patient must, when the bleeding of the nose sets in, hold his head high, and must not stoop down. When the patient is lying in bed, the upper part of the trunk and the head must rest on very high pillows. It is strongly advisable to avoid all violent bodily exercise, and the partaking of any alcoholic or narcotic drinks for a considerable time after the bleeding of the nose has stopped. In order to prevent a return of the bleeding, the removal of the primary disease is necessary, and the application of the "General Strengthening Treatment" is advisable.

Blood, Circulation of the, is a continuous process, proceeding automatically and uninterruptedly in the same direction. The blood flows through the heart into the arteries, through the

trunk arteries and all their ramifications to the capillaries or hair-like blood vessels; there it carries out its functions of nutrition, and excretion or separation. (That is to say, as described in the article "Blood," it supplies material for new tissue, and takes up effete matters, which it afterwards gets rid of through the excretory organs that carry them right out of the system.) Then it passes on to the veins, in which it flows in the opposite direction out of their manifold ramifications and tiny branches, and through their larger stems, and finally back into the heart. The course of the blood is divided into what are called the greater and the lesser circulations. Since the blood passes, in its course through the system, twice through the heart, the greater circulation (also termed the greater blood path or the main blood path, because about three-quarters of the whole mass of blood circulates through it) comes about in the following manner: From the left ventricle of the heart, or small chamber of the heart (Fig. 310g), the blood

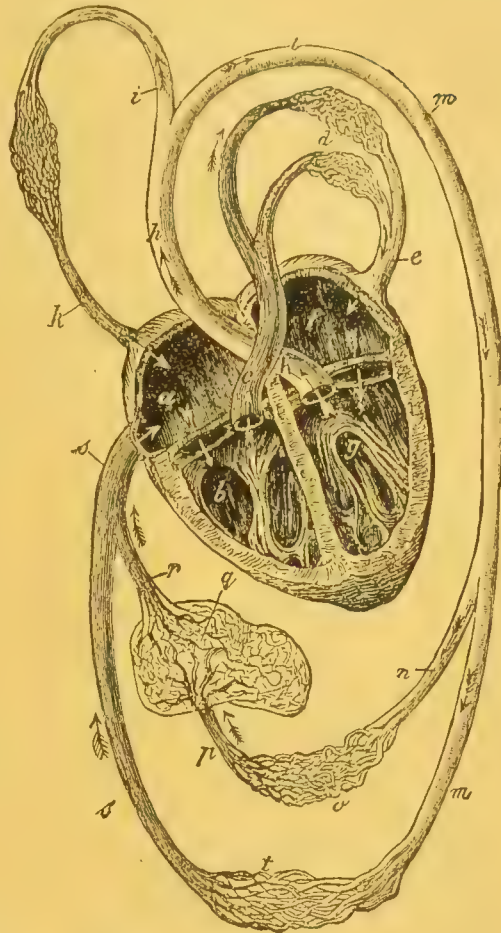


Fig. 310. Diagram showing the scheme of the Circulation of the Blood.

(The heart is open in front; the arrows indicating the direction taken by the course of the blood. The tubes that are darkly shaded in the drawing contain dark red blood. Those that are light, bright red blood.)

a. Right auricle. b. Right ventricle. c. Pulmonary artery, which is divided into a right and a left branch, for the right and left lung respectively. d. Capillaries of the lesser circulation in the lungs. e. Pulmonary veins. (There are four such veins, opening out into the left auricle of the heart.) f. The left auricle; and g. The left ventricle. h. Aorta. i. Arteries of the upper part of the body. k. Veins of the upper part of the body (the upper vena cava). l. Arch of the aorta. m. Descending portion of the aorta. n. Arteries of the abdominal vessel. o. Capillaries of the intestinal canal. p. Portal vein (vena porta). q. Capillaries of the vena porta, inside the liver. r. Veins of the liver. s. Veins of the lower half of the body (lower vena cava). t. Capillaries of the greater circulation.

is driven, in a bright red condition, by means of the aorta or main artery (Fig. 310h), through the whole body into the hair-like blood vessels or capillaries (Fig. 310t); it becomes darkened, and, in consequence of the nutritive processes, becomes laden with carbonic acid gas. It then flows in this condition through the hollow vein (vena cava) (Fig. 310s and k), into the right auricle of the heart (Fig. 310a). In the lesser circulation the dark blood flows out of the right half of the heart (Fig. 310a and b) through the artery of the lungs (the pulmonary artery), (Fig. 310c) into the capillaries of the lungs (Fig. 310d). Here it is purified of its carbonic acid gas, that is to say, it is converted into bright red blood, and then returns, impregnated with oxygen, through the four pulmonary arteries (Fig. 310e) to the right half of the heart (Fig. 310f and g). As the smaller circulation is confined to the region of the lungs, it is also called the pulmonary circulatory system, or the small blood path, through which only a quarter of the whole mass of blood circulates. Thus the blood, in each of its two circulations from the heart, is emptied into one artery and its branches, and then, by means of the capillary vessels, into the veins, and flows through these back to the heart. Since, however, the blood in its circulation never comes back again to the same spot in the heart from which it started, neither the great nor the lesser circulation is quite accurately named, they rather represent paths for the blood which are in so far connected that, in each half of the heart there is contained the end of the one and the beginning of the other. The processes of nutrition and secretion take place in the track of the greater circulation. The bright red blood is darkened by the taking up of carbonic acid gas, and turned to a dark red. The smaller circulation serves the purpose of changing the dark red blood within the lungs and in the capillaries back to a bright red, that is to say, of purifying it from carbonic acid gas. The average time taken by one course of the blood (the period of circulation) is, according to the investigations of scientists, about twenty-three seconds when the pulse is beating seventy-two beats per minute. The rapidity of the movement of the blood is always very various, differing according to each constitution, sex, temperature, climate, time of the day, time of the year, mode of life, attitude or position of the human body, breadth and combination of the blood vessels, constitution and composition of the blood itself, and so forth. (For further particulars on

this subject, see also under the headings, "Veins," "Blood," "Heart.")

Blood Corpuscles. (See "Blood.")

Blood, The Human. — Blood, as everyone knows, is one of the most important constituents of the body, and is one without which it could not exist for a single moment. In the blood are contained the materials for keeping up the metabolism or processes of conversion, the ingredients out of which the living bodily substances are formed, so that in a sense the blood contains, in fluid form, the entire organism. It has two chief functions to fulfil. The one consists in the nourishing of all the organs of the body, the other in getting rid of the waste products that arise in the processes of conversion, or of interchange of matter in the body, which waste products arise in the blood through the action of the processes which we know as life. The nutritive matter is taken up by the blood out of the stomach and the intestines, while the oxygen is taken up by it from the lungs. The nourishment of the body and of its organs takes place by means of nutritive fluid or juice, which is constantly welling up out of the blood. This is limpid and of a clear colour, like water, and contains, in solution, nearly all the constituents of the blood. While the blood, in its circulation, is streaming through the capillaries, the nutritive fluid filters through the extremely thin walls of the capillaries, enters into the tissue and saturates it, giving to this tissue the necessary material to replace that which the tissue is constantly parting with in consequence of the process of conversion above referred to. Thus the blood, having taken up (from the food and air) all the materials necessary for the continuation of the life-processes, and the building up of the body, parts with them again, conveying them to the tissues, where they are converted into the new materials that form all the bodily structures. In this way the blood nourishes every individual portion of the body, the bones as well as the muscles, the brain as well as the organs of sense, etc. But the office which the blood has to fulfil does not consist only in giving, but also in taking.

The blood must, simultaneously with its supplying of nourishment to the tissues, take up from them, and in equal measure from all the organs of the body, the refuse, or, as one may say, the waste products of the tissues which have been created in consequence of the process of conversion, in

order to transfer this refuse in turn to the excretory organs that cast it forth from the body. Therefore the blood always contains a certain proportion of excretory matter, by which it is, in the truest sense of the word, rendered unclean, and whose permanent stay in the blood would bring along in its train the most serious injuries to life. The blood is therefore itself also subject to the laws of metabolism, since it renews itself and cleanses itself, purifying itself from the presence of its old and dead constituents. As long as the

blood remains in the human body, it presents the appearance of opaque, sticky, tough, alkaline fluid of red colour.

The blood in the arteries is of a bright, or rose-red colour; that in the veins is of a dark or bluish red. Its normal temperature is 98.5° F. Its smell is faint, and its taste is saltish and sweetish. On the average the amount of blood in the human body is about seven to eight per cent of the weight of the whole body. If one looks at the blood through a good magnifying glass, one finds



Fig. 311. The Human Blood Corpuscles (magnified about 500 times).

I. Red blood corpuscles (circulating). II. Red blood corpuscles (at rest). III. White blood corpuscles.

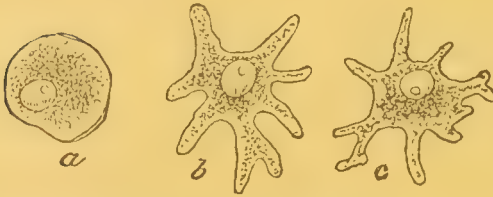


Fig. 312. Human White Blood Corpuscles (much magnified).

a. Corpuscle at rest. b and c. Corpuscles in motion.

that this red fluid is composed of two different constituents, namely, the blood plasma, an almost colourless, or pale yellow, somewhat sticky, alkaline fluid, and innumerable small round bodies swimming about in this fluid.

These latter are the blood corpuscles, of which there are two kinds, the red and the white. The red blood corpuscles (see Fig. 311I) are present in the largest numbers, at least, under the magnifying glass, the appearance of the blood gives one the impression that the whole blood fluid is composed of them. They are formed out of white lymph corpuscles, which come out of the nutriment workshop, so to speak, into the blood stream, and in their passage through the air present in the lungs, become red, take up oxygen, and carry

it into the organism. The form of the red blood corpuscles is that of a disc with its edges rounded off. While the blood is circulating, all the red blood corpuscles swim about separately, but when the circulation is stopped, they lie with their flat sides stuck together like rolls of money. (Fig. 311II.) The white blood corpuscles (lymph corpuscles) (Fig. 311III) are only present in very small numbers in the blood. To every three hundred to three hundred and fifty red blood corpuscles in blood fluid of a normal constitution there is only one white corpuscle. They are naked (or membraneless), nucleated cells, with a granular surface. In a state of rest (Fig. 312a) they have a spherical form; in a state of circulation, on the other hand, they have a changing form. They possess the capacity of now contracting and now expanding, and generally of changing their form continually, so that sometimes they are quite different in form to others, and present a jagged appearance. (See Fig. 312b and c.) Since they possess this characteristic capacity for a perpetual changing of form, in common with the lowest forms of life found in water, namely amœbæ, the white blood corpuscles are called amœboides. (See, with regard to this matter, under the heading "Cells.")

Bloodlessness; Poverty of the Blood; Anæmia.—

Poverty of the blood, or anæmia, is an independent disease of the nutritive system. It is the cause of a disease of the blood fluid. Injurious external influences, want of air and light, bad food, improper nursing or insufficient care for the health, severe illnesses, loss of blood, onanism, and so forth, often contribute to the development of poverty of the blood, or anæmia. This disease is especially prevalent among women; in the case of pregnant women, and women in child-bed, after one or more severe hemorrhages, which the organism seems unable to compensate for in spite of the best nourishment. Here the disease chiefly indicates the diminution of the quantity of the blood fluid and of its constituents, that is to say, real poverty as regards the blood in the true and literal meaning of the words. But there are also other causes, as, for instance, faulty bodily development, neglected physical training of children, which either causes the child to appear sickly and ill-nourished, even in childhood, or brings about, at the time of puberty, conditions of great weakness, which, in girls especially, takes the form of chlorosis. Anæmia, together with weakness of the nerves, is perhaps

the most widely-spread disease of our present epoch; it is a hereditary curse of the present generation. Patients may, at the same time, appear to be well nourished; their blood, imperfectly prepared, appears pale and watery, and less red than the normal blood, since the number of red blood corpuscles has diminished,* these are, at the same time, weaker in colour and shrivelled together, and are characterised by a striking lack of iron,† whereas the white blood corpuscles appear to be in the constitution normally.

The picture of the disease of anæmia is a very varied one, and is characterised by similar phenomena to those of chlorosis. (See under that heading.) The skin, and also the external visible mucous membranes, are pale and bleached-looking; the veins appear as blue lines through the skin of the hands, of the feet, of the temples (and of the breasts in the case of women), the gums, lips, and mucous membranes of the mouth and of the pharynx. The inner margins of the eyelids are of a waxy paleness; the patient is very liable to feelings of cold and shivering. Cold hands and cold feet, swollen face, muscular weakness, and a morbid tendency to fall asleep, dislike of work and of bodily movement, laziness, loss of energy, frequent gaping, the belching of wind, ravenous hunger alternating with loss of appetite, stomach troubles of all kinds, dislike for meat foods, and a desire to eat such substances as chalk, ashes, acids, etc.; bleeding of the nose, weak and irregular menstruation, blood spots under the skin and bloodshot eyes, dropsical swellings, a compression of the chest, shortness of breath, fainting fits, feelings of giddiness, attacks of spasms, convulsions, headaches, pains in the back and lumbar region, pains in the nerves of every kind,

* Poverty of the blood and chlorosis are distinguished from each other in the following way: The constitution of the blood, which, in the case of chlorosis, is the basis of the disease, shows a diminution of the red blood corpuscles, of the cellular elements of the blood, while at the same time the serum or watery part of the blood is as rich in mineral salts and in albuminoids (or white-of-egg-like substances) as it is under its normal conditions. On the other hand, the relations of the composition of the blood, in the case of anæmia, show not only a want of the red blood corpuscles, but also, at the same time, an insufficient amount of mineral salts and of albumen in the serum.

† Iron is present in the skin of the red blood corpuscles (see article "Blood"), and this iron is required by the blood for the purpose of life.

noise in the ears, flickering before the eyes, diminution in the senses of sight and hearing, general disturbances of the senses, weakness of memory, stuttering, and even epilepsy and St. Vitus' Dance, are further characteristic symptoms of anæmia or poverty of the blood.

The treatment for poverty of the blood, or anæmia, is the same as that described for chlorosis. (See under that head.)

The worst form of anæmia is progressive or pernicious anæmia, which is chiefly exhibited between the ages of twenty-six and forty-five, seldom earlier or later. In this condition sometimes the temperature goes up to 103° F., and even more, which fever, in fatal cases, tends to sink, during the course of the disease, to 93° F., and even lower. The duration of pernicious anæmia is generally about from three to ten months, rarely longer; permanent cures are very rare; only occasionally does the process seem to stop, and an apparent, but not genuine improvement, sets in. As a rule, what happens is, that death supervenes after the gradual extinction of all the vital functions.

The only course is an external mild Tonic and Strengthening Treatment.

Blood Poisoning.—When poisonous foreign matters find their way into the blood and bring about a morbid alteration in its normal composition, it is called blood poisoning. The poisoning may take place through the entry of the poisonous matter from without, as in the case of a bite from a poisonous serpent, from a mad dog, from the sting of a poisonous insect, through unclean or infected surgical instruments, or from infection in autopsies (post-mortem examinations) and dissections, through vaccination, through anthrax or splenic fever, and so forth: or it may arise within the body itself, through the poisoning of the blood with pus (pyæmia), or through a poisoning of the blood with the excretory matter contained in the urine being held back (uræmia). Wounds of the epidermis, as, for instance, through a cut or a sting of an insect, wounds of the mucous membranes through the action of ulcerating processes or gangrene, or also, in the same way, the wounded or raw surface of the womb after a confinement very frequently offer an entry into the system for poisons, and lead to blood poisoning and pyæmia; an unfavourable termination to inflammation of the kidneys (Bright's disease, nephritis) often leads to uræmia, or the poisoning of the blood with the matters contained in the urine.

The symptoms of blood poisoning having taken place are very various. When the poison has made its entry through the epidermis, or outer skin, the part of the body at which the poison went in swells up, the swelling gradually enlarges and spreads to neighbouring parts of the body, until, with the accompaniment of the most violent pains, gangrenous disintegration sets in. Both in the case of this kind of blood poisoning, as also in those of pyæmia and uræmia, signs of fever arise, which often, especially in the case of pyæmia, show a varying type; rheumatic troubles in the limbs and muscles (osteomyelitis), that is to say, purulent inflammation of the bone marrow; periostitis, that is to say, purulent inflammation of the periosteum, or membranous covering of the bone; purulent inflammation of the joints, breast troubles of various kinds, swelling of the spleen, diarrhœa, bleeding from the epidermis or outer skin, affections of the brain, kidney troubles, and numerous other symptoms, show the presence of blood poisoning. (For all particulars with reference to the treatment of blood poisoning consequent upon snake bites, insect stings, the bite of a mad dog, vaccination poison, etc. see under corresponding heads in the Index.) As to the treatment of suppurative fever and uræmia, one should make choice, according to the symptoms which the particular case of fever exhibits, and according to the degree of fever, between one of the fever treatments prescribed in Vol. 2, possibly, for instance, from two to four hip baths daily at from 84° to 88° F., of from six to ten minutes' duration, or washings of the whole body in water of from 73° to 77° F.; reclining vapour baths No. 3, in combination with subsequent hip baths and trunk baths, soothing trunk and stimulating calf packs every two or three hours, help considerably to lower the high temperature of the body and for the ridding the system of the poisonous constituents of the blood. In cases of puerperal fever, in addition to the above treatment, the vagina must be washed out three or four times a day with water at 90° F., each time the amount of water used being from one-and-a-half to two pints. Special symptoms on separate parts of the body require either soothing and antiphlogistic treatment (that is to say, calculated to counteract inflammation), or stimulating local treatment.

Blood, Purification of the; Blood, Remedies for Purifying the.—The opinion that one must, at certain times, especially in the spring, when the fresh herbs of the fields

and meadows sprout forth, purify his blood, is one of the most widespread popular errors. People imagine that the fluid of the blood is of such a nature and composition that it becomes choked up with waste product, and can be filtered at will. Then people eat large quantities of herbs and roots of grass, dandelion, lettuce, watercress, etc., either raw or in the form of salads, and take a lot of "blood mixtures," "curative drugs," and "herbal draughts" of all kinds. The intention is to purge, or, according to popular belief, to "purify" the blood. All these more or less laxative remedies have nothing whatever to do with the purification of the blood. When the blood really contains substances which have changed its normal constitution, as, for instance, in patients suffering from syphilis, gout, diabetes, chronic inflammation of the kidneys, and other forms of disease, then one can only help a little by improving and changing the constitution of the blood, and to this end a large number of these natural healing factors belong, in addition to the merely purgative, diuretic (that is, urine-producing), or sweat-producing vegetable substances. I readily admit that good service is rendered by means of the different herbs and teas, etc., in so far as they facilitate secretion and excretion, that is, however, the only advantage that one gets from their use. Blood purifying, however, in the true sense of the word, they are not, for, as a matter of fact, there is no specific remedy in existence by means of which the blood can be sifted or filtered, or purified at pleasure.

Blood, Spitting of; Violent Hemorrhage; Hæmoptysis.—When anyone chances to see in his spittle or sputa streaks or points of blood, or even a tinge of blood colour, he is, as a rule, extremely frightened, because the thought is at once present that now certainly he is to be considered almost as one condemned to death, since, of course, the blood must come from that vital organ his lungs. Fortunately for the patient, however, it is only very rarely indeed that an immediately imminent catastrophe is to be feared, for it is quite possible that, especially in cases where violent clearing of the throat causes the rupture of small blood vessels in the mouth, the pharynx, or the larynx, the blood may come from these parts, or even indeed from the air passages and from the lungs, without any great danger being indicated by these symptoms. Now such ruptures of small blood vessels are very common in people who are suffering from severe lung

diseases, but when they take place in otherwise healthy persons, such a cause need not always be assumed, and therefore they are comparatively unimportant. For it is quite as possible, as it is unimportant, for a tiny blood vessel in the air passages, or in one of the offshoots in the neighbourhood of the lung cells, to burst in consequence of some external influence, and give forth some little blood. Only, in the case where there is an obvious weakness of the chest, or where a dry cough has already lasted for some time, or where the sufferer has often been troubled with darting or catching pains in the chest, and where the spitting of blood is immediately preceded by such symptoms as chill, excitement, palpitation of the heart, pains, pressure, heat, tickling in the larynx and so forth, and the patient then, amidst a sensation of violent suffocation, feels a warm fluid stream rise through the air passages, and when it has reached the mouth is conscious of a sweetish saltish taste, and then when, after he has expectorated a smaller or greater quantity of bright red frothy blood, he feels, if the quantity has been small, a sensation of relief, and if it has been large, falls into a faint, has convulsive moments, cold limbs, and so forth, and remains for a long time in a state of exhaustion—only in such a case as this does bleeding of the lungs bear the true character of hæmoptysis, or violent hemorrhage.

In this case one is confronted with a symptom of tuberculosis of the lungs, or consumption, in which tuberculous inflammation has brought about the destruction of a blood vessel inside the lungs. Certainly some other causes may also bring about the real spitting of blood, such, for instance, are congestions of blood in the lungs arising from failure of the heart's action, catarrh in the air passages, a great liability to rupture in the walls of the blood vessels of the air passages, and so forth, but hemorrhage caused by such causes is very rare indeed.

It may almost be taken as a rule — and this is an extremely characteristic distinguishing symptom — that invalids, mostly hypochondriacs of the most typical kind, with whom the event is without any deeper meaning whatever, turn perfectly pale — not from loss of blood but from fright — and behave as if they were in deep despair, after a moderate bleeding from the mouth, whereas patients who are suffering from severe lung complaints, and are obviously among those whose days are numbered, often treat such an attack,

so ominous for them, very lightly indeed, and even make light of very considerable hemorrhages, not believing any danger to be present, although very often the first violent hemorrhage is also, with them, the last.

The treatment is of course only to be directed to the removal of the primary disease. In the lighter cases one should follow the rules under the heading "Blood, the Vomiting of." (For further particulars, see under "Lungs, Bleeding from the," in the Index.)

Blood Stanching. (See "Bleeding.")

Blood, Temperature of the. (See Index.)

Blood Tumour. (See "Purulent Boil.")

Blood, Vomiting of, follows as a result of diseases of the stomach, for instance, from tumours of the stomach or from cancer of the stomach. Occasionally the vomiting is only the effect of suppressed hemorrhoidal hemorrhage, or menstruation in the case of women, and in this case leaves behind it a feeling that the body has been greatly lightened and relieved, for it is only nature helping the process of cure. As a rule, however, this vomiting of blood shows the presence of a tumour in the stomach. (See under this head.) The blood vomit looks chocolate-coloured, and is sometimes lumpy with remnants of food.

The following are the premonitory symptoms of the vomiting of blood: Sudden painful burning in the region of the stomach, fear, a feeling of sickness, retching, etc.

Where the disease is a chronic one, the following signs precede the act of vomiting: Prickings on both sides of the stomach, especially on the left side; a feeling of pressure and tension at the pit of the stomach, a belching of wind, the vomiting of sour mucus, violent spasmodic movements, violent pulsations in the region of the stomach, and many other symptoms; sometimes the blood breaks forth from the mouth and nose at the same time.

Vomiting of blood is distinguished from the so-called "spitting of blood" (see under this head), in which the blood which is thrown up from the lungs is of a bright red colour and frothy. After spitting of blood, the sputum often contains traces of blood for a long time, while, after vomiting blood, blood is very often found in the excrement.

The treatment of blood vomiting consists, in the first place, in giving perfect rest to the patients. They should lie in bed in a horizontal position on the back, and avoid every

movement, however slight, even that caused by speaking. On the heart and on the region of the stomach thick cold compresses, only very moderately wrung out, and of a temperature of from 59° to 65° F., should be placed, and these should be renewed as soon as they become hot. At the same time calf packs should be applied alternately with reclining vapour baths No. 4, as well as laxative enemata, 77° to 81° F., followed by injections (to be retained) at from 59° to 65° F. When the patients suffer from fainting-fits, they should be sprinkled with cold water, or the whole body should be washed with a mixture of water and vinegar. Drinks of all kinds must be avoided for the first twenty-four hours, except that one may give the patient a tiny sip of cold water every ten minutes; after twenty-four hours the patient should have a tablespoonful of milk warm from the cow, given him at longer intervals, but one must only give him mucilaginous foods (oatmeal porridge, barley porridge, sago, etc.), at a cool temperature and in small quantities. When one is quite sure that the bleeding in the stomach has ceased, a strictly non-irritating and non-exciting diet must be adhered to for a long time, and this diet must be combined with the "General Strengthening or Tonic Treatment." (For further particulars, see under the headings "Stomach, Tumour in the" "Stomach, Cancer of the.")

Vomiting of blood, in consequence of a violent blow or push in the region of the stomach, or caused by the swallowing of sharp or cutting articles, such as needles, pieces of glass, splinters of bone and so forth, requires, in general, the same treatment; only, in this latter case, the administration of mucilaginous drinks is indicated from the very first, in order that the foreign body may become coated with them and the stomach somewhat protected.

Blood, Want of. (See "Bloodlessness, Anæmia.")

Bodices, Laced, Danger of. (See "Women, Diseases of.")

Bodily Heat. (See Index.)

Boil. (See "Abscess.")

Boils, Abscesses.—The boil is the product of an inflammation and its suppurative outcome. There arises in this process, in a circumscribed, smaller, or greater space of the organism, a formation and collection of pus. A boil or abscess has most frequently its site in tissues that are loose, or very richly supplied with blood vessels. The size of the abscess may vary between that of the head of a pin and that

of the head of a small child. A distinction is made between hot and cold abscesses. The first kind is characterised by pains, inflammatory reddening, swelling and heat; in the latter these phenomena are wanting. The cold abscess arises slowly and gradually only in persons who are in a very run-down condition, or affected with bad composition of the fluids of the body. Every suppurative process goes through different stages. The tissues experience an irritation, become inflamed, and then proceed to suppurate. The cellular tissue becomes gradually softened through the exudation of albuminoid fluid, and there are formed in the inflamed tissues whitish thread-like gelatinous shreds and flakes (drops of matter), which, in ever-increasing quantities (as one can clearly see by the use of a good magnifying glass), become detached from the adjacent portions of tissue, swim about in the exuded fluid, and finally are washed away by it. Before it is discharged, the pus is collected in small cavities, which then burst their dividing walls and form one larger cavity. This single abscess cavity enlarges gradually, and towards its upper surface becomes rounded and pointy; its wall becomes thinner, as the pus shows signs of an effort to break through and make a way out for itself. This condition is called the maturity of the abscess. After the discharge of the pus the suppuration diminishes, the abscess cavity becomes filled up with granulation, or little grains of flesh, and a scar is finally formed in the place where it has broken through.

When inflammation arises in a hair follicle, or in a sebaceous gland with a firm wall-like boundary, then this kind of abscess is called a boil. From the tense reddened skin a swelling is developed, the circumference of which is hard and extremely painful, and it possesses a clearly-marked point or head. After about six or eight days it discharges the matter, and together with it, the hair follicle which has been rooted up, and which, in the suppurated spot, has the appearance of a cork; after this cork has been cast out, the boil soon heals, leaving behind a more or less considerable scar. The general health is, at the same time, very little, if at all disturbed.

Carbuncle is a kind of boil with a large circumference, that arises accompanied by violent disturbance of the general health, and which has its rise in, not one, but many inflamed hair follicles or sebaceous glands. The swelling is very painful, hot, and of extraordinary hardness; it is of a reddish

violet colour, and may be of the size of a small child's head. The suppurative process requires a fairly-long time for its complete development. The pus is then, as a rule, discharged through several openings, so that the surface of the ulcer has a sieve-like appearance. Gradually the whole ulcerous surface becomes decomposed into one discoloured mass, which, however, does not penetrate very deeply below the surface, and is in due order thrown off, a scar being formed in its place.

Loss of appetite, sleeplessness, weariness, depression, restlessness, fear, nausea, and a more or less high degree of fever, and many other general symptoms which accompany carbuncle, demonstrate in a characteristic manner the difference between this disease and an ordinary boil. The carbuncle, as a rule, has its site either on the throat or the nape of the neck, or the back, or the seat, or the extremities. In the case of old and much-lowered or cachectic persons, a fatal termination of the disease, consequent upon blood poisoning, is far from rare. A distinction must be made between non-malignant, non-infectious carbuncle, and malignant infectious carbuncle. The latter arises through infection with the poison or virus of the carbuncle, through touching living or dead bodies to which the contagion attaches.

The causes of a boil, an abscess, a suppurative swelling, or a carbuncle, are to be found either in the influence of external injuries, such as wounds, the stings of insects, bites, poisonings with infectious matter (such as the poison from dead bodies, etc.), or are to be sought in the stopping up of the exits of the hair follicle, or of the sebaceous glands of the skin, or in a faulty constitution of the blood and fluids of the body, such as exists in the case of cachectic persons, drunkards, and persons in a very low state of health; or it arises very frequently in persons who have much to do with animal matters in a state of decomposition, such as knackers, butchers, etc. The predisposition of the skin to such a formation of boils is called *furunculosis*.

On the local treatment of ulcers, boils, and abscesses, I have already, in the Second Part of this book, p. 513, expressed myself very fully; and in order not to make useless repetitions, I will refer the reader to what I have there said. In order, however, to disburden the body, and especially the site of the ulcer, etc., one should stimulate the excretory organs to more energetic activity, in order to rid the body

Plate XIV.

Curative Plants.*

Fig. 1. Thyme. (*Thymus serpyllum*.)

Infusion of the herb is given for weak digestion and flatulence in the intestines; externally, used as a wash and for herbal pillow. Physiological action: Tonic, disinfectant. Chemical constituents: Etheric oil (thymol). Taste, somewhat like camphor; smell is aromatic.

Fig. 2. Waybread. (*Plantago major*.)

Infusion and liquid extract of the leaves and root is given internally for chronic dyspepsia, mucous inflammation of the lungs, stomach, intestines, long-standing catarrh, weak bladder, and intermittent fever. Externally, in the same form, it is used for indolent, inflamed swellings. Physiological action: Solvent, acting on the mucous membranes, and blood cleansing. Chemical constituents: Bitter extract, tannin, salts. Taste sweet, then bitter.

Fig. 3. Ribgrass. (*Plantago media*.)

Preparations, uses, curative effect, physiological action, chemical constitution and taste, the same as the Waybread (see above).

Fig. 4. Lungwort. (*Pulmonaria officinalis*.)

Infusion of the herb is given internally for pus cavities in the lungs, coughing blood, abdominal complaints, etc. Physiological action: Astringent, healing. Chemical constituents: Vegetable mucus, potash. Taste: Syrupy, astringent.

Fig. 5. Meadow sage. (*Salvia pratensis*.)

On account of the tannin contained in them, the infusion of the leaves is given internally for excessive secretion and excretion, as in the night sweats of consumption, inflammation of the pharynx, scurvy, excessive menstruation, liver and kidney complaints. Externally the infusion is used as a mouth wash and gargle, washes (lotions) and injections. Physiological effect: Astringent, slightly tonic, preventive of perspiration, disinfectant. Chemical constituents: Tannin, bitter extract, etheric oil, and an acid substance. Taste is bitter, the smell strongly balsamic.

* See articles on "Boiling Down (liquid extract)", "Herbs, Curative", and "Glüncke's Curative System".

Fig. 6. Lavender. (*Lavandula officinalis*.)

Infusion of the herb and flower heads given internally as a remedy for weak nerves, faint ness, colic, and paralysis; the infusion is used externally as an aromatic lotion for rheumatism, sprains and bruises. Physiological effect: Strong tonic and nervine. The chief chemical constituent is the etheric oil. Taste, bitter, aromatic, camphorous. Smell pleasantly pungent.

Fig. 7. Peppermint. (*Mentha piperita*.)

Infusion of the herb is given for disorders of digestion, colic, windy spasm, hysteria, hypochondriasis, and scanty menstruation. Externally the infusion is used for tonic and stimulant washes, and as a mouth wash for foetid breath. As an injection into the back-passage it acts soothingly. Physiological effect: Promotes digestion, soothing, and promotes excretion by the skin. Chemical constituents: Etheric oil (oil of peppermint), tannic acid. Taste, camphorous; smell strongly balsamic.

Fig. 8. Valerian. (*Valeriana officinalis*.)

Infusion of the root is given internally for all nervous complaints and cramp, more particularly when the latter is caused by womb mischief, hypochondriasis, hysteria, worms, etc.

Chemical constituents: Bitter extract, gum, starch, etheric oil, valerianic acid. Taste is bitter-sweet, smell, unpleasant.

Fig. 9. Lilac. (*Sambucus nigra*.)

Infusion of the flower heads is given internally for catarrh, cough, hoarseness, rheumatism, retained perspiration; externally the same preparation is used for washes, mouth and eye lotions, and herb pillows. Physiological effect: Mildly astringent, blood cleansing, diuretic and slightly aperient. Chemical constituents: Resins, tannin, valerianic acid, sulphur and etheric oil. Taste is pleasant, smell rather sweet.

Fig. 10. Common Yarrow. (*Achillea millefolium*.)

The infusion of the herb is given internally for cramp of the stomach, piles, excessive menstruation, hypochondriasis, hysteria, incontinence of urine, constipation, etc. Externally in the form of poultice for wounds and inflamed swellings. Physiological action is strengthening, slightly aperient, nerve stimulating, promoting perspiration and secretion of urine. Chemical constituents: Bitter extract, resinous matter, gum, salts, large amount of potash salts, traces of sulphur, etheric bluish oil. The taste is herbaceous, spicy-bitter; smell, balsamic.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.



Fig. 10.

of any self-poison or foreign poison that may be in it. For this purpose the best means are to carefully adopt a mild and non-stimulating diet, strictly avoid the use of meat, or alcoholic or narcotic drinks, and daily take one to two complete packs at from 73° to 77° F., of a duration of from two to three hours; or reclining vapour baths Nos. 1, 2, or 3; laxative enemas, in combination with subsequent small cold enemas, may also effectively aid the cure. Persons in a very debilitated condition, or with a tendency to the formation of boils, should adopt the rules of the General Strengthening or Tonic Treatment for a time. Strong patients, on the other hand, should adopt the modified lowering cure. For the rest, one should choose the General Treatment prescribed under the headings "Blood Poisoning," "Gangrene," "Wounds."

Boiling Down, Decoction and Infusion.—In some curative treatments, such as Kneipp's system, remedies from the plant-world have been used with success. Few who are in attendance on the sick know how to prepare the liquid extract and infusion from leaves, flower heads, seeds, roots, barks, stems, or the whole plant, in such a way that it shall be serviceable, that is to say, contain the virtues of the plant, so that it shall not fail to have a curative effect on the whole constitution of the body.

For boiling down (liquid extract) plants or their parts, those which contain no volatile matter are most suitable. Generally the roots, bark, or stems, etc., must be boiled, and are put into cold water and slowly warmed until boiling, which should continue half-an-hour, continually stirring, and eventually, whilst still warm, strained.

Infusion is made from such healing plants as contain volatile matter, and whose virtue depends solely on this matter. To this class belong fennel, camomile flowers, balsamint, peppermint, lilac flowers, aniseed, etc.; mostly plants, flowers and young leaves having a volatile aroma, that is to say, a strong odour. These must not be boiled, as the active etheric ingredients would be driven off, and simply leave bitter extract, tannin, etc. The spasm-allaying power of the camomile, for instance, would be lost; lilac would not any longer promote perspiration, etc. The idea that long-boiled and dark infusion is more effective is a wide-spread fallacy. Infusion should be prepared as follows: In an earthenware vessel, having a well-fitting cover, place the parts of the plant to be infused in a saucepan or pot, cover with boiling water,

and having put the lid on, let it stand ten to fifteen minutes; then place somewhere to cool, and filter through a fine sieve or linen cloth.

Plants or parts which are not suitable for making liquid extracts (boiling-down), or infusions in hot water, are infused in cold water. This is called maceration,* and is chiefly resorted to where it is necessary to extract the aromatic and easily soluble substances, without at the same time extracting the coloured, bitter, and earthy matter. Hay flowers, shave grass, and other herbs which are only used externally in the form of washes, vapour, or fomentations, are not so much affected by the abstraction of aromatic substances, as they mainly depend on their astringent properties.

Bowels, Consumption of.—(See “Tuberculosis.”)

Bones, Bone Structure, Skeleton.—The bone structure which forms the strong foundation of our bodies consists of 245 separate bones, including the thirty-two teeth. The bones, joined together by ligaments, form a moveable system of beams and levers, termed trunk or skeleton. It serves as a foundation for the encasement and strengthening of the weaker organs, and especially for the chief muscles of motion. Sometimes it forms cavities (brain, breast, stomach, eye, nose, forehead, mouth cavities, etc.), in which these organs lie securely. The long circular bones principally form the limbs; the flat broad ones compose the cavities; and the thick short bones are generally found in those parts made up of numerous small formations acting in concert for the production of motion, as in the case of the hands and feet. Bones are covered with a sinewy, strong membrane, rich in blood vessels.

The new formation and the growth of the bones arises chiefly from a cellular membrane, which is found between the bone and its membrane. The bone formation is sometimes of strong, sometimes of spongy consistency (Fig. 313). The central portion of the round bones possesses a thick wall of strong substance. Their joints, on the other hand, are united by a spongy substance (Fig. 314). The bone structure receives its strength and firmness from incorporation with earthy matter. From the process of cellular change in the earthy matter, the so-called bone cavities (oval, flattened spaces) arise, and are continued in very fine ramifications, called chalk or bone canals. These canals, for the most part

* Maceration, from the Latin, “macerare,” to soften, soak.

of small calibre, are joined to another network of canals of far-reaching ramifications, extending throughout the whole mass of bone. Countless little apertures may, through a good microscope, be seen on the surface of a bone, and represent the mouths of these canals. They also occur in countless number in the narrow cavities of the bone. These channels contain, as aforesaid, numerous nerve and blood vessels, they, on this account, are termed medullary cavities, or Haversian canals. The severing of a bone by means of a very fine saw shows, when seen through the microscope, very fine glistening plates, the result of the cutting through of the channels (Fig. 315a). These narrow channels are covered by delicate little folds or layers. One part of the latter runs

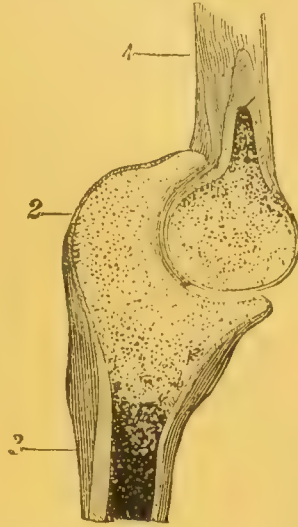


Fig. 313. Longitudinal Section of the Elbow-Joint.

1. Humerus (upper arm). 2. Head of the ulna. 3. Ulna. (The illustration shows the cavity of the joint [the depression between the humerus and the ulna] also the solid outer substance and the inner spongy mass of the bone.)

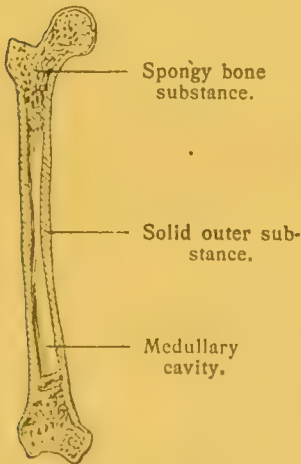


Fig. 314. Longitudinal section of the Thigh Bone.



Fig. 315. Cross Section of Bone.

(Much enlarged.)

a. Medullary canals (Haversian canals) surrounded by lamellæ (small plates).

through the whole circumference of the bone (general or fundamental layers), another extends throughout the medullary canals (special strata). Should a round bone be split perpendicularly, it is found to be hollow, and filled with marrow. (Fig. 314.) The bones are connected with each other in some cases by ligament-forming moveable joints. In other instances

by sutures and clefts, forming immoveable articulations. Moveable joints are divided into those which have a very limited action, giving a small field of action, the other allowing much less restricted movements. Hinge joints, which allow the bones to move on each other, but only in one direction. Rotating joints, or condylarthrosis, giving freedom of action to the extent of half-a-circle. Ball and socket joints, capable of motion in all directions.

The narrow space which is between and near the ligamentally-bound bones, and which is enveloped outwardly by a ligament joining both bones (capsules or joint capsules), and inwardly by a thin membrane (synovial membrane), is termed "joint cavity." This contains a whitish fluid, whose office it is to keep the joint lubricated.

The skeleton is divided into head, trunk, and limbs. The skull is composed of twenty-eight separate bones, besides the thirty-two teeth. The bones of the skull are divided into two divisions, viz., those of the head and those of the face. The boundary line of these two extends from the roof of the nose on either side, and along the eyebrows to the extremities of the ears. The head part is formed of eight flat bones joined by sutures. In the foreground — on the forehead — is the frontal bone (Fig. 316); behind, on the back of the head, the bone forming the back of the head, occipital bone; in the centre, on top, covering the brain, lie the two parietal bones (Fig. 316); on the sides — temples — are the right and left temporal bones (Fig. 316), and underneath, the foundation or sphenoid, and the ethmoid bones. The face is composed of fourteen bones; with the exception of the lower jaw bone and the vomer bone, all the remaining face bones have duplicates — one for the right and the other for the left side of the face. The prominence of the face is formed by the nasal bones (Fig. 316) the upper jaw bones (Fig. 316), the cheek or malar bones (Fig. 316), as well as the lower jaw bone (Fig. 316). In the eye cavities the lachrymal bones are situated. In the nasal cavity the inferior turbinated bones and the vomer; in the mouth cavity — the palate bones. Intermediate between the larynx and the muscles of the neck is the hyoid bone, whose province is principally to keep the tongue in position. The complete organism of the whole is held together by means of tendons. This arrangement is advantageous, in so far that, by pressure, the separate bones dovetail into each other, thereby causing a decreased circumference of the brain, so

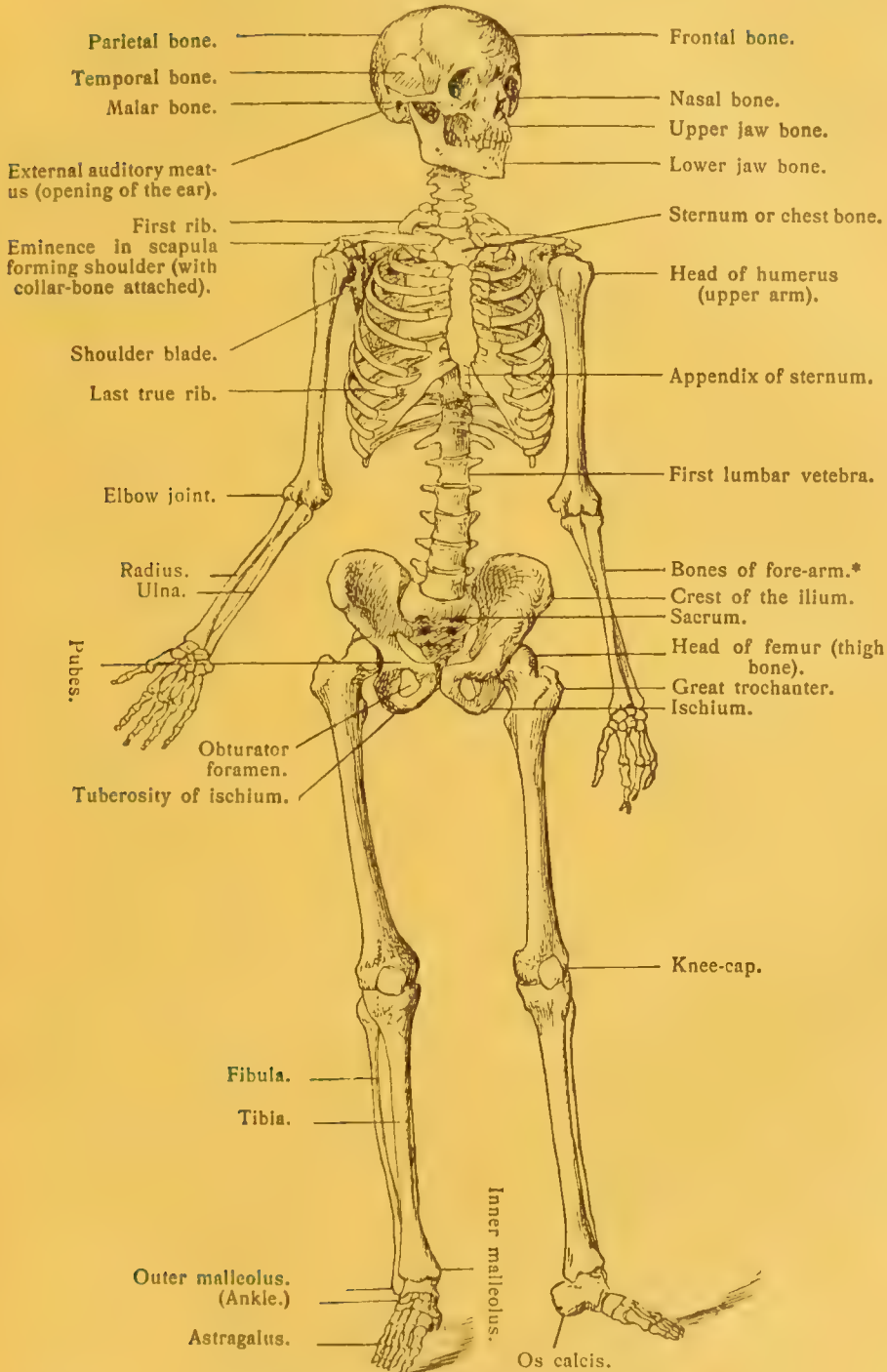


Fig. 316. The Human Skeleton.

* The different position of the two fore-arm bones is caused by rotation of the hands.

that, in the act of birth, the head of the child is able to pass through the maternal channel. The tender, sensitive, cartilaginous opening in newly-born children—above the forehead—is called the anterior fontanelle, and it is closed after a lapse of about two years. A still smaller fontanelle is found on the back of the head, at the juncture of the parietal bones with the bone forming the back of the head. In the third year the knitting of the bones (which are serrated in appearance) begins, and is carried on till the completion of the twentieth year. In a healthy condition, the size and form of the skull depends upon growth of the brain. In its exterior form the brain is either round or oval at the back. Some nations, as the Anglo-Saxon, negroes, etc., are happy in the

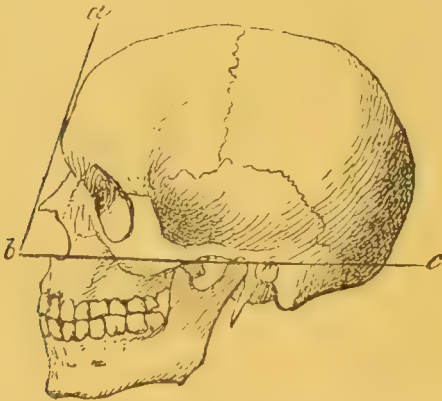


Fig. 317. Skull of an Anglo-Saxon.

a, b, c. Angles of the face.

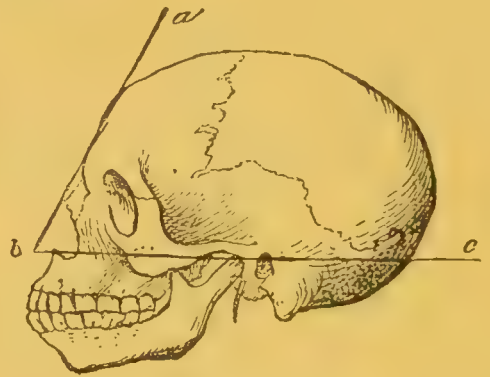


Fig. 318. Negro's Skull.

a, b, c. Angles of the face.

possession of long heads (Figs. 317 and 318); others, as the Turks, Mongolians, etc., are of a shorter formation. The higher the capacities of a race, the larger, in proportion to the face, are the brain and brow projecting from the face. The more the facial angle, the less intellectual the possessor.* (Fig. 318a, b, c.) The more sunken the face and arched the brow (Fig. 317), the more intellectually endowed is the possessor. The face division of the skull contains the jaw bone, in special compartments of which are situated the thirty-two teeth—eight grinding, four canines, and twenty molars. The

* The face angle, according to Kamper, is formed of two lines, one of which extends from the most projecting middle part of the forehead, across the nose, sideways to the most prominent middle point of the upper jaw; while the other is drawn from the outside of the ear and along the floor of the nose cavity.

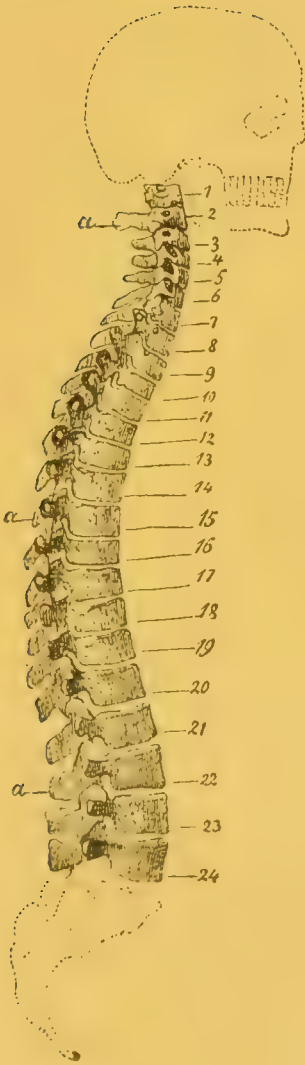


Fig. 319. The Spinal Column.

1 to 7. Cervical vertebrae. 8 to 19. Dorsal vertebrae. 20 to 24. Lumbar vertebrae. — a. Spinous processes. The sacrum is in contact with the last lumbar vertebra (24).

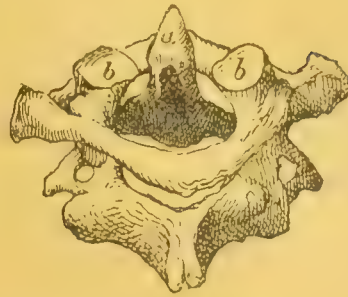


Fig. 320. First and Second Cervical Vertebrae (seen from above).

a. Odontoid process of the second cervical vertebra, around which the first vertebra turns. b. Articular surfaces of the first cervical vertebra (atlas), on which the head rests.

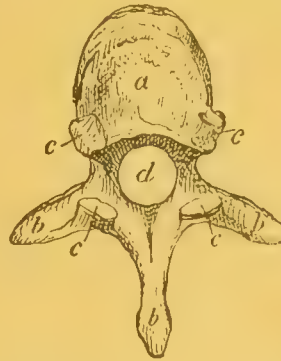


Fig. 321. Dorsal Vertebra.

a. Body of vertebra. b. Transverse processes. c. Articular surfaces for attachment of the next vertebra. d. Spinal canal.

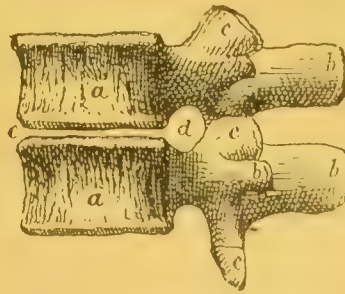


Fig. 322. Two Lumbar Vertebrae.

a. Bodies of vertebrae. b. Transverse processes for attachment of muscles. c. Articular surfaces for attachment of next vertebra. d. Opening formed by the two vertebrae. e. Space for cartilage.

upper jaw bone possesses, above the eye tooth cavity, the upper jaw bone cavity, which communicates with the nasal cavity. Between the dental processes of the two upper jaw bones, the mid bone of unborn children is situated. The lower jaw is joined to the temporal bone by means of a rounded joint and corresponding socket.

The trunk is divided into fifty-three bones. The back bone or spinal column, which extends downward in a serpentine manner, and encloses the spinal marrow, is the foundation of the skeleton (Fig. 319). It consists of twenty-six separate bones. The twenty-four upper ones are termed *vertebræ*, the two lowest the *sacrum* and *coccyx* (Fig. 316). The first seven are termed the *cervical vertebrae* (Figs. 319 and 320); the twelve central, dorsal or back *vertebræ* (Figs. 319 and 321), and the five lower, lumbar or loin *vertebræ* (Figs. 319 and 322). The first vertebra is called "atlas," or "bearer," as it carries the head; the second, "under-atlas," "rotatory vertebra," or the axis, because around the odontoid process of the same, the atlas, with the head attached, can turn round half-a-circle (Fig. 320). The *vertebræ* are moveably joined to each other. The foremost part of a vertebra is called the body (Figs. 321a and 322a); the back part, the arch. From the vertebral arch three divergent processes of bone are given off, to which muscles are attached. (Figs. 321b and 322b). For the articulation of the *vertebræ* with each other, above and underneath the body, two small eminences are found (Figs. 321 and 322). Between two neighbouring *vertebræ* a small aperture (Fig. 322d) is formed, to admit the nerves arising from the spinal cord (p.). Ductile and elastic tendons bind the separate *vertebræ* into one whole, leaving it with sufficient powers of motion (Fig. 322e). On the twelve dorsal or back *vertebræ*, twelve ribs correspond on either side — seven false and five true ribs.

The seven true ribs are bound in front by means of so-called rib cartilage, the breast bone. (Fig. 316). From this union is formed the breast case or thorax, in whose cavity lie securely, lungs, heart, and the large blood and nerve vessels. To the last lumbar vertebra, or rather connected with it, is joined the *sacrum* (Fig. 316). On the lowest part of the *sacrum* is found the tail or *coccyx*, composed of four immoveable *vertebræ*.

In the hip bone there is a deep joint cavity, for the head of the thigh bone (Fig. 316). Each pelvis bone consists

of three amalgamated bones — the ilium, the ischium (Fig. 316), and the pubes. On the lower end of the ischium is found the tuberosity or seat (Fig. 316). The two pelvis bones form, together with the sacrum and the coccyx, the pelvis, in whose circular cavity (pelvic cavity), the bowels, excretory organs, and sexual organs are situated. The stomach

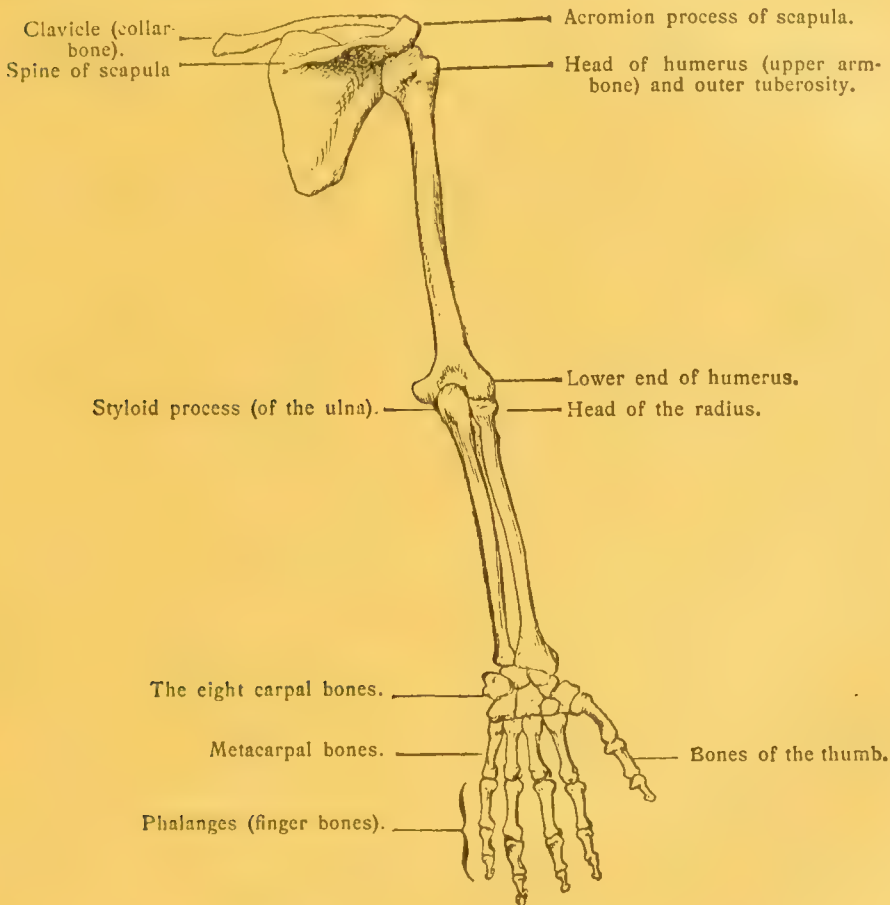


Fig. 323. Bones of the Arm.

cavity lies between the breast and pelvic cavity, and contains digestive organs, spleen and kidneys.

The arms or upper limbs are composed of sixty-eight separate bones. The bones of the shoulder are the collar bone (323) and shoulder blade (scapula, Figs. 316 and 323); the shoulder forms a ball and socket joint.

The collar bone, a thin, curved, long bone, lies over the first rib. The shoulder blade, a three-cornered, flat, shieldlike

bone, is placed on the hinder wall of the thorax, and projects somewhat above it. In this position it is joined with the collar bone, from which the so-called shoulder eminence is formed. The upper arm bone rests its half-circular head (Fig. 316) in a cavity in the shoulder blade. It is joined at its lower end (Fig. 323), through the medium of the elbow joint (Figs. 313 and 316), with the two bones of the fore-arm. The upper arm bone helps to form two joints, those of the shoulder and elbow. The radius and the ulna (Fig. 316) represent the bones of the fore-arm. Its under end is joined to the hand by the wrist joint. The upper part of the hand, which is joined to the fore-arm, receives the name of wrist. It is formed of eight small bones (Fig. 323). They are held together tightly with the bones of the middle of the hand by ligaments.

The thumb alone forms an exception. Its middle bone is joined to the large many-cornered bone by a free joint. Each of the five fingers, excluding the thumb, possesses three bones (Fig. 323), which are joined, forming a hinge joint. The first bone of each finger is united to the bones of the middle hand by a free joint. The thumb possesses only two bones. On the joint formed by the first bone of the thumb and those of the middle hand are two little knuckles called sesamoid bones. The legs or lower limbs consist of sixty-four single bones. The thigh consists, as the upper arm does, of only one bone — the thigh bone. It possesses on its upper end a circular-shaped joint, which rests in the cavity of the pelvic bone, and in this manner forms the hip joint — a somewhat narrow, rounded joint. For the support of the rotatory muscles of the thigh, two rough eminences, called trochanters (Fig. 316), are in use. The lower end of the thigh forms, together with the knee cap and shin bone, the knee joint, which represents a hinge joint. The knee cap (Fig. 316) is a heart-shaped bone, which covers the cavity of the knee joint. The lower leg is composed, like the fore-arm, of two bones — the tibia (Fig. 316) and the fibula (Fig. 316). Both the lower leg bones and the foot form the ankle joint, a circular but rather narrow joint. The lower end of the shin bone (tibia) has, on the internal side of the ankle joint, an eminence called the inner malleolus (Fig. 316). The outer malleolus (Fig. 316) is represented by an eminence on the lower end of the fibula, on the outer side of the ankle joint.

The foot consists of the root, the middle foot, and the toes. The root is formed of the seven foot bones (Fig. 316). The upper of these bones, which is in contact with the ankle joint formed by the two lower leg bones, is called the astragalus. Under the astragalus bone is found the heel bone (os calcis, Fig. 316), which ends with the heel at the lower and posterior extremity of the foot. The middle foot consists of five (metatarsal) bones. They are tightly bound together by ligaments. The middle foot bone of the great toe forms no exception, although the latter is not so supple as the thumb. The rest of the toes (Fig. 316) possess three bones, excepting the great toe, which has only two, and, like the thumb, it possesses three so-called sesamoid bones. One of these is situated on the joint between the first and second bones of each toe; two sesamoid bones lie on the joint between the first bone and the middle foot bones.

Bones, Diseases of the.—The bone substance is subject to the various changes inherent in the different tissues of the body. From the bone membrane a multitude of the finest little canals branch off, filled with tiny capillary vessels, and extend to the inner surface of the bones. In the same manner, fine capillary vessels course through nourishing conduits into the marrow cavities, and form an intricate network all over the bones. From countless numbers of the finest little blood vessels, the nourishing fluid (compare article on “Blood, Human Blood”) reaches every chink and cleft in the bones, feeds the blood cells, builds up new tissues, while used-up matter, decayed bone cells, etc., are carried round in the circulation and finally ejected.

Bone substance is, in this way, similarly to the other tissues of the body, exposed to many diseases, whose causes arise partly through a change in the normal condition of their living matter and partly through interrupted circulation of the same.

Bone Decay (Caries).—Bone decay represents a form of bone disease in which suppuration takes place. The soft as well as the hard substance succumbs to it. It arises less from external influences than from faulty admixture of the blood juices, constitutional disease — as gout, tuberculosis, scrofula, syphilis, etc. The teeth are frequently carious, and attacked by bone decay. Its spread to other and more extensive parts of the bones frequently happens. Caries from a tuberculous basis freely attacks the limbs and spinal column,

while consumption of the bone, through syphilis, affects the chin and breast bone, as also the nose and head bones. In its earliest stage, bone decay is characterised by a painful, sometimes blue, red swelling on the soft parts of the bone attacked. From tumours a festering matter opening is developed, which has its seat in the inflamed bones. The ejected matter is generally thin, limpid, and interspersed with caseous flakes. In subsequent stages, circular high edged, hollow tumours, with inflamed, dirty coloured, easily bleeding edges, are formed. In many cases the matter paves a way for itself in the direction of the opposite tender parts, destroys them, and then breaks through further portions of the surface of the body, until it reaches the inflammatory spot. While, in bone mortification, the part affected is hard, we have to deal with hard, rough, dead bone splinters of different sizes, which are either ejected through suppuration, or retain their place in the adjoining apparently healthy bone tissue, and continue their baneful influence as foreign bodies there. In caries the bones are soft and puffy, not dead, and excessively sensitive to the touch.

The treatment of bone decay must be directed towards removing the fundamental cause. In many cases the strong, or modified abducting régime, together with the general health treatment, must be applied. The local treatment is either by strengthening dressings or counter-irritant bandages. The diet must be plain and strictly vegetarian.

Bones, Fractured.—A fractured bone is a bone which has been damaged (fractured) by some external and powerfully operative agent. Two forms of fracture — simple and compound — are, according to the condition, shape and position of the bone, and the effect of the external violence, to be specially distinguished. Although bones are strong, yet they are brittle. They break to pieces like glass or porcelain, and frequently with an audible and perceptible sound. The long or cylindrical bones are most easily broken. Superficial bones, on account of their position, easily suffer fracture, while those situated in deeper positions are guarded from outside operative influence. Fracture either occurs immediately after the given blow, push, etc., or by transmission of the external power, fall, push, etc. For example, a lower leg bone is broken generally by falling on the feet accidentally. The different kinds are simple, compound, clean, unclean; perfect, imperfect; splinter, long, oblique and transverse

Plate X.*

Fig. 1. Fracture of the thigh bone, obliquely united.

The usual signs of a recently-fractured bone are, abnormal moveability, the characteristic grating, and the deformity, the latter being caused by displacement of the broken ends. The displacement of the broken ends may be in various directions — to either side, at an angle or longitudinally, and, in exceptional cases, through turning, cause one or more fractures. We may also get a complication of displacements. The illustration shows a fractured thigh bone, united, by which we may recognise the various displacements. The ends of the fracture are united by a large hard mass. An exceptionally severe dislocation causes the oblique joint.

Fig. 2. United fracture of the upper arm.

The illustration shows a slightly angular displacement. The hard mass joining the two ends has assumed the structure of bone.

Fig. 3. a. b. Fracture of the skull.

The illustration shows a compound fracture of the skull, with depression of the bone and extensive clefts in the bone, extending to the base of the skull.

Illustration (a) is the skull laid open. The brain and its outer membrane (dura mater) are uninjured, but there has been considerable bleeding from the middle meningeal artery, two branches of which are shown.

(b) Illustrates the top or dome of the skull; the fracture extends along the seam, and ends by extending into the parietal bone. The raising of broken fragments of bone in compound fracture of the skull dome is usually accomplished by a surgical operation known as trephining (or boring the skull). Bone splinters, depressed hair, &c., must be most carefully removed, to ensure an aseptic condition (absence of inflammatory matter). The fracture is usually united by means of an** osteo-plastic (bony) formation.

Fracture of the base of the skull is caused mostly as a result of fracture of the skull dome. Fracture of the base of the skull usually gives rise to complications from loss of blood, exudation of brain substance, injury of the nerves to the base of skull, &c. The base of the skull, as is well known, is the weakest part of the skull, and injury to it, is most frequently fatal. The treatment is generally a matter of nursing. Fractures of the skull require a perfectly natural treatment, to keep the blood from the head.

* Refer to text, page 852 et seq.

** The filling up of spaces in the bones through bone-forming-process of the periosteum (bone membrane).

Fig. 4. Fracture of the thigh bone.

The inner muscles of the thigh have been removed in the illustration, to show the fractured bone. It is a recent simple fracture with side displacement, the blood vessels, the artery — the vein of the thigh — are badly compressed; friction is going on by means of the under surface of the broken ends upon the blood vessels, giving rise to danger of inflammation. Behind the blood vessels we find the ischiatic nerve. The treatment of this, as all cases of bone fracture, should be left to a skilful experienced surgeon.

Fig. 5. Fracture of the collar bone.

One-fifth to one-sixth of bone fractures is that of the collar bone, or clavicle. This injury is mostly caused by indirect violence, falling on the shoulder or on the hand, when the shoulder and elbow joints are rigid — the collar bone is then bent on its axis and breaks. The most frequent seat of fracture is the middle of the bone. In the illustration the fracture is between the chest portion and the middle third. The fracture, with its severe displacement, is shown in the illustration by cutting the large pectoral muscle (pectoralis major) at its attachment to the collar bone, and partly removing the muscle.

The displacement is partly caused by the upward pulling of the muscle, in part by the weight of the arm, which hangs well down in a typical fracture of the collar bone, and is drawn close to the chest wall by means of the powerful muscles attached to it; the arm is now turned forwards and inwards, due also to the tension of the chest muscles.

The subclavian vein and artery are seen in the illustration, and immediately under the trapezius muscle is the course of the nerves. The first and second rib is also seen. The junction of the broken ends comes about by means of a plentiful bone-forming process. Treatment is solely of a surgical nature.



Fig. 1.



Fig. 2.



Fig. 3b.

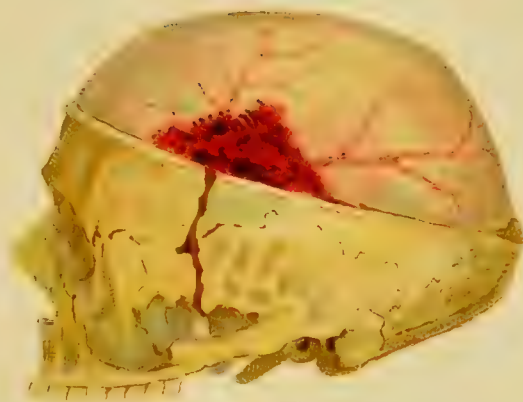


Fig. 3a.



Fig. 4.



Fig. 5.

fractures. Transverse heals easiest, and without leaving a trace of bone deformity after it, as, generally, only a very small displacement of the bones has taken place; while, on the other hand, oblique fracture offers unfavourable chances of a smooth growth, which, on account of the activity of the muscles, displace the fracture, and in consequence of this an oblique healing, in many cases a new joint—termed false joint—is formed on the basis of the fracture. A bone rupture is recognised, in the next place, by an unnatural movement of the bones on the spot fractured. Should a fracture of this kind have taken place,

one end of the bone should be taken in one hand, and the other end in the other hand, and both pushed in a different direction. Inspection shows a bending or shortening of the bone in question, and the projecting of an edge or a point over the broken bone or fracture (Fig. 324), or a furrow, is noticed on the ruptured spot, or a swelling, caused by bleed-



Fig. 324. Simple Fracture of the Lower Leg.

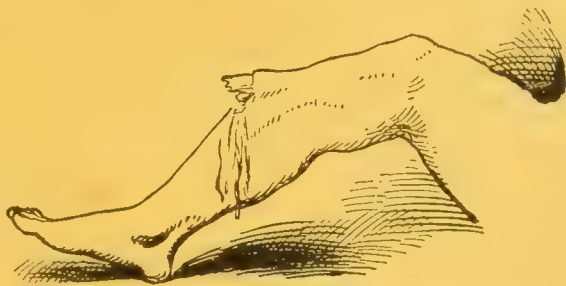


Fig. 325. Compound — splintered — Fracture of the Lower Leg.

ing. A characteristic scraping or rattling, as of the grating of two lumps of sugar against each other; violent pain in the ruptured spot, or, in complete rupture, absolute incapacity to move the injured leg, are further symptoms of a recognised fracture. According to the nature of the fracture so will be the treatment. In simple fracture, a white, cartilaginous bone matter (callus) is, in a few days, formed on the fractured spot, which knits the two ruptured parts into one. In the course of from two to six weeks this substance becomes as hard as bone. Complicated or splinter fracture has generally a long suppurating process, with outbreak of the tender fleshy part (Fig. 325), from which the splintered bones are pushed successively. When this has

taken place — and it generally occupies a considerable time — healing of the bone and flesh follows.



Fig. 326. Applying a Bandage, turning the Bandage to produce over-lapping.

The treatment, setting, and bandaging of fractured bones must always be performed by a skilled and clever surgeon. But, failing this, should it have to be undertaken by someone else, I will add the following rules for the benefit of such:



Fig. 327. A completed Leg-Bandage.

The chief factor in the treatment of fracture is, firstly, the setting of the broken bone and restoring it to its normal position; secondly, the retaining it in this position; and thirdly, the avoiding of all accidents or subsequent injuries to the part so treated. Next it must be carefully undressed, which is best done by cutting up the seam of the stocking and other clothing which surrounds the fractured leg. When the patient has been placed in the horizontal position, as indicated by the above diagram, the setting of the broken bone (arm or leg) should be begun as follows: The broken limb must be compared most carefully and accurately with the corresponding sound, uninjured one; two persons should

then take hold—one the under, the other the upper—of the two joints, and, by cautious drawing and counter-drawing, so extend the bone, that the third person—the setter—may be able

to place the ruptured parts together, and, by gentle kneading and rubbing of the adjoining parts, blend the whole into one. Then, for retaining the normal position, the bandaging should be promptly begun. This much is to be said of the old-style bandages, that they are capable of any desired modifications; that they control the particular spot in the fracture, and can be readily renewed should occasion require. Next, a from 68° to 77° F. compress should be applied to the fracture, and it should be well wrung out and folded from six to eight times. It should project about a hand-breadth on either side all round. Next the whole limb should be bound with a double bandage of linen (not too fine) of about a hand-breadth, in the manner as shown in Figs. 326 and 327. This should previously have been wrung out of water at from 68° to 72° F., and care must be taken that it be not too tightly bound. Now apply lengthwise splints.

Fractures of the Leg require the application of stiff, wooden splints, fitting exactly to the shape of the leg; fractures of the arm require splints of some elastic wood (poplar, oak, etc.), or of whalebone, at a breadth of one-and-a-half to two inches, and one-eighth in thickness.

In fractures of the fingers or toes, tough leather, or poplar splints, are required. The splints are sewn up in linen, and laid on in number according to the size of the fractured limb, lengthwise from the end of one joint to the extremity of the other. They should project a little over the two extremities. Should they be very hard or stiff, their pressure can be lessened by placing two layers of clean chemical wadding underneath. The splints are then bound with a clean linen bandage, and the ends, which have been crossed over the fractured part, sewn up with a few strong stitches. Should heat or violent pain arise from their use, the outer (not the inner) bandage should be temporarily removed, long enough to allow the compress lying over the injured part to be soaked anew with water at 82° F., which, being accomplished, the external dressing should again be applied, otherwise the dressing should not be touched for the first three to five days, and then removing the splints

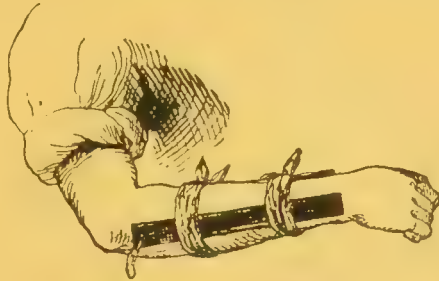


Fig. 328. First-aid Bandage in Fracture of the Fore-arm.

and placing them somewhat differently around the limb is recommended. These precautions, together with a plain, simple diet, will, generally speaking, effect a cure in from four to six weeks. On the expiry of the fourth week, a compress bandage may be substituted for the splints, and in from two to three weeks later experimental motion made with the limb. But it requires to be used in moderation for at least from four to six months afterwards. Daily washing down at 68° to 72° F., and slight massage, are recommended during the entire convalescent stage.



Fig. 329. First-aid Bandage in Fractured Fore-arm.

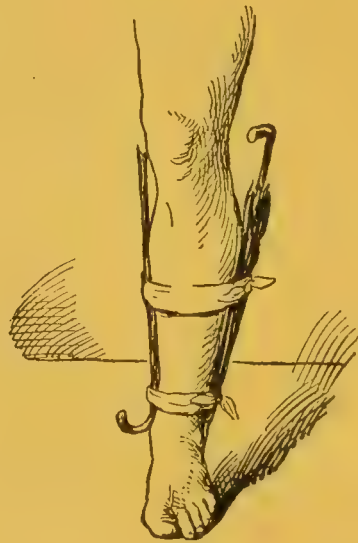


Fig. 330. First-aid Bandage of a Lower Leg Fracture.

The favourite "scientific" plaster-of-Paris dressing is only essential in cases of oblique fractures and fracture of certain bones. Its application has the following disadvantages: The fractured part is not under observation, circulation in the injured limb is interrupted, and its exhalation completely suppressed. Cure, therefore, under the plaster dressing is not so quick as under the splint bandaging, and the strengthening of the limb, atrophied in the former case, requires generally several months. Frequently, for the setting and dressing of a limb a patient must be carried to a surgeon or a hospital.

The necessary equipment for transport in such cases forms the theme of subsequent remarks. The first essential to be noticed in cases of accident is, whether a bone has been broken or not. That may frequently be determined by observing the changed aspect of the limb, seen even through its clothing. When this is impossible, the latter should be cautiously cut or stripped off. Should it be found that a bone



Fig. 331. First-aid Bandage of a Lower Leg Fracture.

has been broken, a temporary bandage must be immediately applied, assuming the proportions of a compound case through injuries sustained in transport. Such temporary bandages (Fig. 328 to 331) are composed of the same kind of long, firm supports—substitutes for splints—as applied in ordinary dressing. These may be a walking stick, umbrella or sunshade, rulers, boards, bark of trees, branches, twigs, laths,

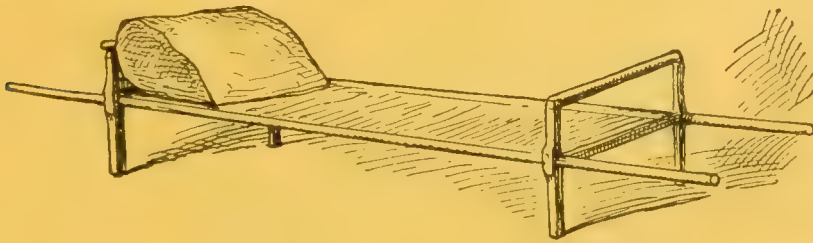


Fig. 332. Ambulance or Litter.

split cigar boxes, straw wisps, etc. For paddings—moss, hay, wadding, tow, flax, wool, etc., may be used. For bandages—handkerchiefs, children's rollers, neckerchiefs, towels, serviettes, garters, braces, torn up outer or under-clothing, string, twine, etc.

A good temporary dressing is devised as follows:

Take two thin sticks corresponding in length to the broken bone, place them on each outer edge of a cloth doubled

up several times, roll up in the cloth towards each other, leaving just space enough to admit of the broken limb. Then



Fig. 333. Placing an injured man with Factured Lower Leg on Litter.



Fig. 334. Conveyance of injured man on a Litter.

fasten the cloth on to the sticks with tacks, and you have a well-fitting, soft support, with firm strong edges. Next,

gently push this under the damaged limb, while a second person raises it a little, at the same time pushing in the

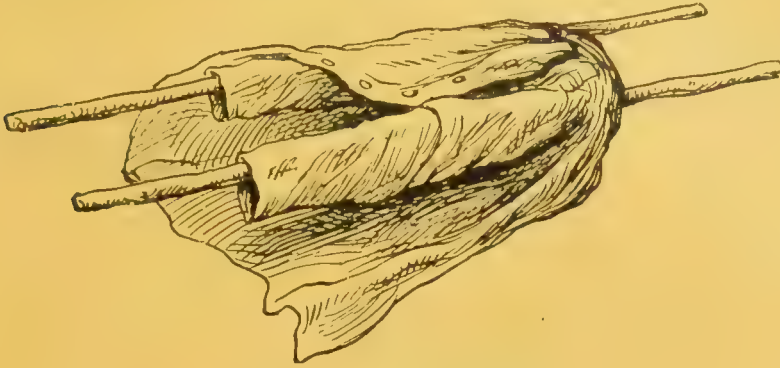


Fig. 335. Emergency Litter.

fractured part with one hand above and with the other below. Then put on the external fastening of string or strapping.



Fig. 336. Arrangement of arms and hands of two men for conveying an injured person with Fractured Thigh Bone.

Should there be a dearth of material, the patient himself becomes the temporary support, the broken leg being bound fast to the other.

The transport is best effected, in case of a broken leg, by an ambulance board (Fig. 332). In raising, two persons go, one to either side of the patient, and, by placing their hands under his back and thigh, lift and carry him backwards to the ambulance board. A third directs his attention to the injury, and supports it with his hands on either side (Fig. 333). The board is then simultaneously carried by the two bearers, who,



Fig. 337. Two men carrying an injured person, with Fracture of the Thigh Bone.

by the way, should be of similar height, and borne away, whilst the third walks along keeping guard. (Fig. 334). It should also be noticed that, in carrying, the bearers should not keep step. Keeping step causes jolting, and the patient is thereby liable to have his body injured. Their step must be short and uneven, moving the haunches as little as possible. In transport, great care must be taken to avoid shaking; and intervening obstacles, as ditches, dykes, etc., circumvented, in order to maintain equanimity of motion. In going downhill,

the head of the litter must proceed first, so that pressure on the fractured part, through the weight of the body, may be avoided. The patient is lifted from his position in the manner indicated above in lifting. Should there be no ambulance board at hand, a substitute must be resorted to. In this case, bedsteads, sofas, ladders (Fig. 334), doors, window shutters, seats, chairs, kneading troughs, mattresses, straw sacks, to the corners of which rings or loops have been fastened; also woollen coverings (bed, travelling, etc.) are substituted, and



Fig. 338. Arrangement of arms and hands of two men for conveyance of an injured person with Fracture of Lower Leg.

carried by four persons, who place themselves at the relative four corners of the vehicle. Or two edges of a coverlet are sewn together firmly with twine, and two long poles introduced. Also sacks, meal sacks, etc., whose two lower corners have been pierced to admit of two long poles, or two coats or mantles with arms tucked in, having the poles inserted and buttoned over, may be substituted. In temporary cases, one coat, if large enough, might prove sufficient as a medium of transport (Fig. 335). Hard objects must bedded by means of feather cushions, coverlets, straw, moss, etc. Finally, there are manifold ways of extemporising transports, but

space forbids me to treat them in detail here. Should, in spite of all sagacity, no object be discovered to form a temporary means, the only way left open is to carry the patient across one's hands. Two persons are necessary for this, and their arms must be arranged as shown in Fig. 336. The clasped hands of the bearers come exactly under the fractured part (Fig. 337). A more comfortable seat is formed by arrangement of hands and arms as shown in Fig. 338. This is adapted for carrying

a sufferer from lower leg bone fracture, the distance not being too great.



Fig. 339. Sling for Fractured Fore-arm.

When the arm is injured, no transport vehicle is requisite. The patient has it temporarily dressed, and placed in an arm sling (Fig. 339) for support. For the arm sling, a four-cornered cloth, folded in a three-cornered fashion, is required. The arm is then placed in the sling, so that the hands rest upon the broad central portion. The two ends are then carried right and left across the breast and behind the

head, where they are knotted either on the back or shoulder. The part of the cloth projecting from the elbow is sewed firmly to the side of the sling, that the arm may not be displaced. The kind of sling chosen for support of the arm must be the one most suitable for correctly setting and bandaging the limb.

Bones, Hardening of.—Bone hardening is generally the result of a previously neglected or improperly treated inflammation. The bone substance is either without change in the external form of the bone attacked, or a perceptible deformity, in the form of a hard swelling or excrescence, takes place.

The treatment consists in the strong or modified course. The counter-irritant bandage should be applied locally (p. 513).

Bone Inflammation, Inflammation of the Bone Membrane (Periostitis).—Bone inflammation, or inflammation of the bone membrane, is a disease of the tissue surrounding the bone membrane through which nourishment finds its way to the bone itself. The bone membrane is covered with thousands of capillary vessels, extending net-wise all over its surface, so that inflammation of the same is a very serious evil. It may be developed as a secondary, dependent on any other disease, or appear as a primary disease, through inflammatory affection of the bone substance.

The causes of inflammation are partly external, through injurious influences acting on the bone membrane, as bruises, wounds, etc.; partly dyscrasia (syphilis, scrofula, etc.), from which diseases of the bone substance, as for example, caries or necrosis, arise. Inflammation is recognised first by cold shivering; more or less high fever, with swelling of the fleshy parts surrounding the affected bone; and by dull, piercing pains, which increase by warmth, etc. Then a slight appearance of the disease is seen, attended by fever, tumours, and pains, and, through caries or necrosis, sets up inflammation of the bone membrane.

The treatment must be directed towards the removal of the fundamental disease, when faulty mixture of the juices is the cause of the bone inflammation. A strong or modified cure for this may be chosen. (See "History of Inflammation," p. 320).

In any case, a plain, simple diet, consisting mostly of vegetables, is prescribed. According to the character of the inflammation, whether acute or chronic, compresses at 77° to 81° F., to counteract the inflammatory effect, or at 73° to 77° F., alternately with steam compresses, should be applied, and in chronic cases the application of a counter-irritant bandage (p. 513) is recommended. The diseased limb requires quiet rest. When fever is present, the treatment for such (II. Section VI.), should be chosen. In incipient bone inflammation, the general treatment consists in one or two complete washings at 77° to 84° F. daily, from two to three vapour bed baths weekly, and frequent aperient enemas, together with subsequent small cold ones.

Bone, Mortification of (Necrosis).—Bone mortification arises chiefly in consequence of inflammation of the bone membrane. From this, in turn, inflammation of the marrow channel arises, which causes a stoppage, by which the blood is deterred from reaching the bones, and the bone tissue,

being thus left without nourishment, soon decays, and the bone becomes inflamed. (For further reference, see "Inflammation fo the Bone Membrane," and "Bones, Caries of the.")

Bone Skin, Inflammation of the (Periostitis).
(See Index.)

Bones, Softening of.—Softening of the bones is characterised by softening of the hard, strong, normally developed bone substance, in consequence of the dissolution and absorption of its lime-salt supply. The strong outer rind thus becomes porous, the little channels extend their ground, the marrow compartments break up, and finally the entire bone substance becomes so soft that often it may be cut open with a knife. The causes of the disease are as yet veiled in darkness. Old age, pregnancy and lying-in generally offer opportune occasions for its inception. The symptoms, from its earliest stage, are as follows: Dull, piercing, apparently deep-seated pains; sensitive to pressure in the afflicted bones. The gait is uncertain, the pace short and taken with effort, and malformation of the pelvis, spinal column and thorax take place, while injury to the limbs, head, or face bones, is less frequent. Eventually walking becomes an impossibility, and the unfortunate patient is obliged to remain in bed. The duration may be from four to ten years, before release through death occurs. Cures are rare. The treatment is the same as that employed for rickets. The general health treatment should for the most part be applied, and a strong or modified special treatment as required.

The Brain, and Brain Nerves; Spinal Cord and Nerves; Ganglionic Nervous System.—The brain (Figs. 340 to 343) is that substance of the nervous system which is enclosed in the skull, and is a continuation of the spinal cord (Fig. 344). The brain is the centre of the nervous system, by which we receive impressions of sensation, which endows us with consciousness, and enables us to make voluntary movements; in a word, it is the organ of thought, sensation and will-power. Sensation and will are the two extremes of brain power, between them are the mainsprings of capacity and consciousness. The impressions received objectively we feel. The nerves of sense and feeling make us conscious of these impressions. While consciousness is roused by sensation, consciousness takes the lead of the will-power and stimulates it, and thus are motor nerves brought into action. From the shape of existing perceptions, impressions on the

Plate XI.*

Fig. 1. a. b. Fracture of the forearm.

The forearm is frequently the seat of fracture, in consequence of its situation during work; it is also very liable to fracture when put out to save a fall or accident. We must detect the fracture of both bones of the forearm, or of one bone, the radius or the ulna. The illustration shows a recent cross-fracture of the ulna, and an old and some-time united fracture of the radius. Illustration (a) shows the bones of the forearm without the muscles: Illustration (b) the forearm, which, though uninjured externally, shows an eminence where the broken ends press outwards. This is the consequence of considerable displacement, which can be remedied by means of a splint, which will keep the whole arm, bent at the elbow, firmly in position during the process of union.

Fig. 2. Fracture of the upper arm.

Illustration is given of a recent cross-fracture, with extensive displacement of the broken ends. The head of the humerus (upper arm bone) is in its right position. The fracture has taken place at what is termed the surgical neck of the bone — scientifically known as *collum chirurgicum* — at the upper end of arm. The large blood vessels and plexus of nerves are forced inwards by the broken end on shaft of the bone. The long two-headed muscle of the arm, the biceps, has been torn and displaced. The small muscle of the chest (*pectoralis minor*), part of the large one (*pectoralis major*), and the deltoid muscles, have been dissected out, the *pectoralis major* being turned down to allow of the fracture being seen. The collar bone is laid bare to view, also the second, third, and fourth ribs. The fracture of the upper end of the arm may arise through direct or indirect violence. Directly, through a push, blow, or a fall on the outer side of the shoulder; indirectly, through severe pressure, on the long axis of the bone, against the shoulder joint cavity (*glenoid cavity*), or the shoulder blade (*scapula*); a fall on the elbow joint would be an instance.

The treatment is purely surgical.

Fig. 3. a. b. Fracture of the kneecap.

The illustration depicts a typical cross-fracture of the kneecap, with extensive tearing of the broad tendons around it. The great displacement of the ends has caused a wide opening, bringing to view the lower end of the thigh bone. The broken kneecap is covered by tendinous shreds, caused by the tearing of the continuation of the tendons of the extensor muscles of the thigh, which forms a covering for the knee joint. Fracture of the kneecap is caused by a direct fall on the knee, collision with any object; indirectly, through

* Refer to text, page 852 et seq.

contraction of the muscles. For instance, a sudden movement to prevent a fall, the kneecap being fixed, a sudden contraction of the quadriceps extensor, or four-headed extensor muscle of the thigh, would cause fracture of the kneecap. The fracture illustrated has been caused in the way (indirectly) just described. The treatment must be left to surgical skill. If the broken ends cannot be well adjusted to each other, recourse must be had to sutures or stitches. An imperfectly united fracture is seen in the annexed illustration. The two broken ends are separated by a deep canal running across the front. This class of united fracture more or less affects the use of the limb permanently.

Fig. 4. a. b. Fracture of the ankle joint.

A typical fracture of the ankle joint is caused by the turning over of the foot to the outer side, or the twisting of the body to the outer side on a fixed foot. The setting forward of the foot in the ankle joint exerts a very severe tension on one of the tendons of the internal lateral ligament (deltoid ligament); by further movement the tendon does not tear, but the pointed process at lower end of shinbone (tibia) is broken. The foot being now forcibly pulled outwards, the fracture of this piece of bone is completed. Illustration (a) represents the injury just described. Illustration (b) shows the altered formation of the foot exteriorly; in both we plainly see the foot, the displacement of the foot, backwards.

Treatment is purely surgical. Fractures, even when simple, must always be looked upon as a very severe injury. Fracture of the ankle joint really represents a broken limb, and requires very particular attention and treatment, as the ankle joint has to bear the whole weight of the body.



Fig. 1b.



Fig. 3a.

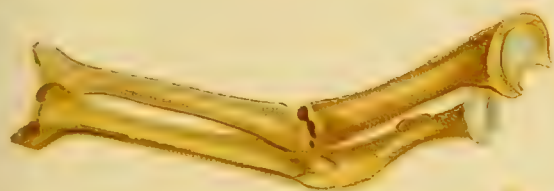


Fig. 1a.



Fig. 4b.



Fig. 4a.



Fig. 2.



Fig. 3b.

feelings and senses are formed; from these, again, notions, judgment and deductions—in short, the brain thinks. Through the action of the will we attain wishes, and association of ideas with the outer world. These become actions, deeds; the will leads up to action. In consequence of the higher development of their organs, compared with those of animals, the human brain gives man a superior rank in creation. Man's mental powers are merely the expression of the development of his brain, the attribute called mind is dependent on this organ. But wealth of mental power is by no means the result of spiritual power, or of a hypersentient soul, but in any case a proof of a properly-developed brain, both as to quality and quantity.

The brain, surrounded in the skull by bony walls, is enclosed in a covering, composed of three thin membranes. These membranes are laid upon one another, like the layers of an onion-peel. The brain substance is generally round, rather oval in shape, and consists of two equal halves. On an average, the brain of an adult European male weighs about forty-nine ounces (its weight is about thirty-fifth of the weight of the entire body); that of the female weighs about forty-four ounces, or generally a difference of five to six ounces.

Like the spinal cord, the brain consists of matter partly grey and partly white. The grey matter forms a cortex or bark round the white (the largest and innermost part of the brain), and it also pervades the inner white matter as brain ganglia (Fig. 342 k). On the outer surface of the brain the



Fig. 340. The Nervous System of the Human Body.

a. Greater brain (cerebrum). b. Lesser brain (cerebellum). c. Spinal cord.

brain convolutions appear, a great number of serpentine convolutions penetrated by blood vessels. Inside the brain there are the four lesser cavities, filled with a small quantity of liquid, and a large number of variously-shaped formations, often named according to their shapes—as the corpus callosum, connecting the two halves of the greater brain (Fig. 342 h); septum lucidum, which is a transparent partition of the lateral ventricle (Fig. 342 i); the fornix, the four peduncles on the surface of which the pineal gland rests; the peduncles (Fig. 342 k), the starting point of the optic nerves. The right and left halves of the brain are connected by the commissures. The brain is divided into three parts—the great brain (Fig. 340 a), the lesser brain (Fig. 340 b), and the middle brain, pons varolii. The first (cerebrum) occupies the greater part of the bony skull cavity, especially the top and front, and contains three cavities—(two lateral and a third), and is divided into two hemispheres by a deep furrow. Each of these consists of an anterior, a middle, and a posterior lobe. The cerebellum is situated immediately below the two posterior lobes of the cerebrum (Fig. 342 d), and consists of two halves, each of which is divided into an upper and a lower half—each of these is surrounded at the bottom by a semi-lunar lobe (Fig. 343). The fourth brain cavity is on the under surface of the cerebellum, between it and the middle brain. The surface of the cerebellum displays a number of diagonal fissures, so that it looks like a number of leaves lying on each other. The internal white matter, in connection with the grey, looks like the branching of a tree when cut vertically. This is called the “tree of life” (*arbor vitæ*) (Fig. 342 d). The middle brain connects the greater brain, the lesser brain, and the spinal cord.



Fig. 341. The Brain.

(Diagonal section of the lower part.)

a. Anterior. b. Middle. c. Posterior lobe of the cerebrum. d. Cerebellum. e. Medulla oblongata. f. Pons varolii. g. Optic thalami. h. Olfactory nerves. i. Crus cerebri, or pedicle of the brain.

rests; the peduncles (Fig. 342 k), the starting point of the optic nerves. The right and left halves of the brain are connected by the commissures. The brain is divided into three parts—the great brain (Fig. 340 a), the lesser brain (Fig. 340 b), and the middle brain, pons varolii. The first (cerebrum) occupies the greater part of the bony skull cavity, especially the top and front, and contains three cavities—(two lateral and a third), and is divided into two hemispheres by a deep furrow. Each of these consists of an anterior, a middle, and a posterior lobe. The cerebellum is situated immediately below the two posterior lobes of the cerebrum (Fig. 342 d), and consists of two halves, each of which is divided into an upper and a lower half—each of these is surrounded at the bottom by a semi-lunar lobe (Fig. 343). The fourth brain cavity is on the under surface of the cerebellum, between it and the middle brain. The surface of the cerebellum displays a number of diagonal fissures, so that it looks like a number of leaves lying on each other. The internal white matter, in connection with the grey, looks like the branching of a tree when cut vertically. This is called the “tree of life” (*arbor vitæ*) (Fig. 342 d). The middle brain connects the greater brain, the lesser brain, and the spinal cord.

mediately below the two posterior lobes of the cerebrum (Fig. 342 d), and consists of two halves, each of which is divided into an upper and a lower half—each of these is surrounded at the bottom by a semi-lunar lobe (Fig. 343). The fourth brain cavity is on the under surface of the cerebellum, between it and the middle brain. The surface of the cerebellum displays a number of diagonal fissures, so that it looks like a number of leaves lying on each other. The internal white matter, in connection with the grey, looks like the branching of a tree when cut vertically. This is called the “tree of life” (*arbor vitæ*) (Fig. 342 d). The middle brain connects the greater brain, the lesser brain, and the spinal cord.

As already mentioned, the brain is enveloped in three membranes, which extend through the cavity of the occiput into the spinal canal, and surround the spinal cord in the same way. The outer one is called the *dura mater*, the middle

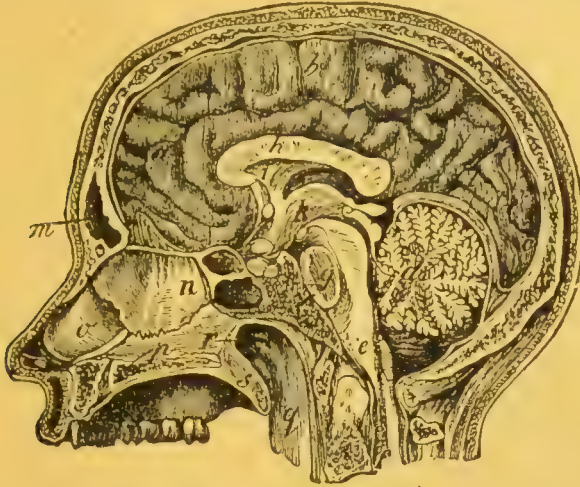


Fig. 342. The Brain.
(Longitudinal section.)

a. Front anterior. b. Middle. c. Posterior lobes of the cerebrum. d. Cerebellum, with tree of life. e. Medulla oblongata. f. Spinal cord. g. Pons varolii. h. The corpus callosum. i. The ventricle, thalamus. k. The optic ridge with the pineal gland and corpora quadrigemini. l. The tentorium. m. The frontal cavity. n. Bony and o. cartilaginous nasal partition. p. The hard gums. q. The pharyngeal orifice. r. The orifice of the ear passage. s. The soft palate, uvula.

the arachnoid, and the inner the *pia mater*. The *dura mater* is hard, and full of blood vessels, and serves as the inner lining membrane of the bony skull. It forms a crescent-shaped partition (*falx cerebri*) between the two hemispheres, and separates the posterior lobes of the cerebrum from the cerebellum, and extends between the two halves of the cerebellum. The middle membrane, a fine, transparent membrane, is called the arachnoid membrane.

The innermost membrane is called the soft membrane, or the *pia mater*. It follows the convolutions of the brain, penetrates it, and forms a vascular (or blood supplying) membrane. The soft membrane is full of blood vessels, but is thin and tender. Between the arachnoid and soft membranes

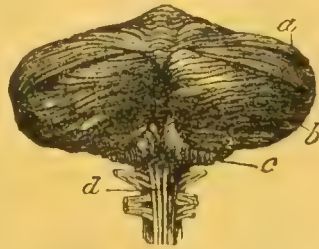


Fig. 343. The Cerebellum.
(Posterior view.)

a. Upper. b. Lower half. c. Lower semi-lunar lobe. d. Spinal cord.

there is a long space, connected with a similar one, which surrounds the spinal cord. These spaces, as well as the four lesser brain cavities, contain the fluid of the spinal cord; its use is to protect the two nerve centres, the brain and the spinal cord.

The medulla oblongata (Figs. 341 e, 342 c, 344 a), the upper end of the spinal cord, connects it with the brain. It appears to be the seat of life, for here, reflectively, originate all motions of the heart and respiratory organs, as well as of the jaws, throat, and convulsive movements. Injury to the spinal cord results in instantaneous death, for this being the centre of breathing, respiration is stopped at once.

The cranial nerves appear at the base of the brain, and issue — enveloped in a compact membrane — through the openings at the base of the skull from the brain cavity, and spread over the head and neck. There are twelve pairs of nerves. The first pair are olfactory nerves (Fig. 341 h), which bring about the sense of smell. The second are the optic nerves (Fig. 370 a), which enter the eye sockets and terminate in the eyeballs. The third pair are the motor optic nerves, common to both eyes. They serve to set in motion the greater part of the muscles of the eyes — the upper eyelid and the muscle fibres inside the eyeball. They are partly motor, and partly optical sensory nerves. The fourth pair are the pathetic nerves — like the third pair, they are motor nerves, and control the superior oblique muscle of the eye. The fifth pair separate into three branches, and are called the trifacial nerves. The first branch, the ophthalmic, goes to the eye, the lining of the nose, and to the brow; the second through the round hole (foramen rotundum) in the sphenoid bone, to the upper jaw and face; the third branch courses through the foramen ovale of the sphenoid bone to the



Fig. 344. Spinal Cord, seen from behind.

a. Medulla oblongata. b. Spinal cord, lower end, with spinal filaments. c. The cervical part. d. The dorsal part. e. The lumbar part. f. Sacral nerves. g. Coccygeal nerves.

lower jaw bone and the tongue (Fig. 346 b, c, d, e). The sixth pair are those of the external muscles of the eye, and move the abducting muscle of the eyeball. The seventh are the facial or mionic nerves (Fig. 346). They originate partly at the base of the fourth brain (ventricle) cavity, partly in the spinal cord; passing through a special canal in the petrous portion of the temporal bone, and spread outward from the ear to the facial muscles, whose movements they direct. The eighth pair are the auditory nerves, used in hearing, and they also issue from the base of the fourth cavity. The ninth pair (glossopharyngeal) are those affecting the swallowing action of the tongue. They issue partly with the tenth pair (the pneumogastric nerves) in the fourth cavity, and partly in the medulla oblongata, go through the jugular foramen of the skull, and extend one branch to the tongue, where it directs the roots of the tongue, the soft palate, and the sense of taste, and with a second the upper part of the pharynx.

The tenth pair are the pneumogastric nerves. They are partly motor and partly sensory, which originate in the medulla oblongata, together with the ninth pair. Throat, windpipe, gullet, stomach, and heart, are all supplied by the motor fibres of the pneumogastric or vagus nerve. The sensory and motor filaments supply the organs of the voice and respiration.

Fig. 345. The Lymphatic Nervous System.

(With the neck and breast parts of the spinal column, seen from the front.)

a. First Cervical vertebra. b. Odontoid process of the second cervical vertebra. c. Second neck joint. d. Cervical vertebra. e. Chest. f. Head of the ribs. g. Superior hollow vein (vena cava). h. Veins of the collar bone. i. Internal jugular vein. k. Vena azygos. l. Beginning of the milk passages. m. Milk passage. n. Opening of milk passage in the vein. o. Upper cervical ganglion. p. Lower cervical ganglion. q. Thoracic ganglion. r. Intestinal nerves. s. Connection of the sympathetic nerves with the spinal nerves.



The feelings of hunger and thirst, coughing, cramp — the vocal organs, gullet, and stomach are supplied with all these sensations by these nerves. The eleventh pair are the “spinal accessory” nerves. They begin in the upper part of the spinal cord, and enter the skull through the foramen magnum. Near the starting point of the pneumogastric nerves, the spinal accessory nerves unite with some brain fibres and with the

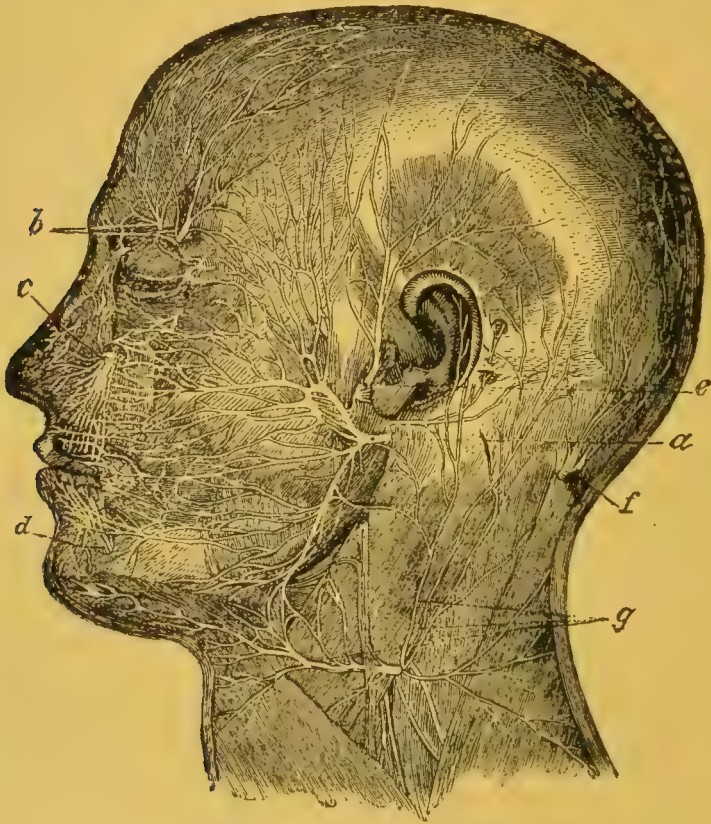


Fig. 346. Facial Nerves.

a. Optic nerve. b. Frontal nerve, with supra-trochlear nerve. c. Frontal nerve, with infra-trochlear nerve. d. Nerves of the chin. e. Auricular and temporal nerves. f. Occipital nerves. g. Greater auricular nerve, lesser occipital nerves.

pneumogastric nerve. The twelfth pair, the hypoglossal, control the muscles of the tongue, and any cramp or paralysis on their part causes interference with speech.

The spinal cord (Fig. 344) is a flat tubular section of the central nervous system, and is enclosed in the spinal canal. The cord is to the bony spinal column what the marrow is to the long bones. To this rough comparison it owes its name of spinal marrow. It is continuous with the brain,

without any very definite line of demarcation, and ends bluntly in the first or second lumbar vertebra. The junction between the brain and spinal cord is called the medulla oblongata (p. 868). The spinal cord is the only connection between the brain and the nerves of the body and limbs. These nerves control the motive power of the body and limbs, as well as all sensation in these parts. Any separation of the spinal cord deprives the lower part of motion, it can neither move nor feel. But the cord does not only connect the brain and the organs, but, like the brain, other duties are assigned to it as an independent nerve centre. It calls into action many complicate motions, called reflective when prompted by a corresponding nerve. It is in appearance like a round flattened cord, about as thick as a little finger. In adults it is sixteen to eighteen inches long, and is also enclosed in three membranes, which are the beginning of the three brain membranes. The outside one is the compact, fibrous, hard membrane of the spinal cord; under it is the thin arachnoid, and the third is the close-fitting, soft membrane. Between the two last a fluid exists, to protect the cord.

As already said, in the neighbourhood of the second lumbar the cord terminates in a slender filament of grey substance, called the filum terminale, which lies concealed in a leash of nerves forming the "corda equina." On the front and back of the spinal cord there is a furrow (anterior and posterior median fissure) running from top to bottom, which divides it into two parts, each of which is again subdivided by two furrows into three columns. At two places the cord is somewhat enlarged, at the cervical vertebra (Fig. 344 c) and at the lumbar vertebra (Fig. 344 e), near the filum terminale, where, in connection with the nerves, it forms the so-called (corda equina) "horsewhip." The white substance, consisting



Fig. 347. A piece of the Spinal Marrow, showing nerve roots.



Fig. 348. Spinal Cord (cut vertically).

of fibres running up and down as well as sideways, and covers in the shape of the three side columns of the cord from outside, forming a rind, while the grey substance constitutes the pith. This can easily be seen in Fig. 348. The grey substance forms a large Roman H, or two half-moons, connected by a bridge. Through the centre of the bridge the spinal canal runs.

The nerves of the spinal cord have various duties. They are composed of motor and sensory nerves, and terminate partly in the spinal cord, partly in the brain. But they do not possess the same qualities all along. Every nerve springs from one of two roots — the first and stronger being motor, the last and weaker sensory. There are altogether thirty-one pairs of spinal nerves, consisting of fibres issuing from the anterior and posterior lateral columns. The fibres unite to form the roots (an anterior and a posterior), which unite again to form a large root. These nerves, thirty-one in number, exit through side openings in the vertebræ from the spinal canal, and then divide into anterior and posterior branches, which are continued into the body and limbs. According to the place of their origin they are named the eight cervical nerves, that branch out to the neck, the occiput, the ears, the throat, the shoulders and arms, in such a way that the four upper nerves supply the neck, and the four lower ones the arms. The twelve dorsal or back nerves, whose hinder branches go to the back, and the front ones, called mid-rib nerves, extend through the front and sides of the chest and stomach. The five nerves of the loins (lumbar), which also send out their posterior branches to the back, while the front branches extend to the lower extremities, the five nerves at the base of the spine (sacral, Fig. 344 f) also extending backwards and forwards. Finally, the thirty-first nerve — that of the coccyx (Fig. 344 g), whose front and back nerves surround that bone, and form its tissue terminating at the back.

The sympathetic, or ganglionic nerves, spread in the form of a net, unite with the blood vessels, and communicate with numerous ganglia, from which they take their name (Fig. 345). The majority of the nerves of this system, composed of marrowless and sympathetic fibres, issue partly from the brain and spinal cord. The ganglionic system is divided into the ganglionic and the periphery. The ganglion, or sympathetic, looks like a thread, which runs down right and left at the

front of the vertebræ, and on it there are about twenty-five larger and smaller bunches of nerves, divided by spaces. From these again branch out nerves running to the blood vessels, also brain and spinal nerves. The groups of sympathetic nerves are named according to their position — head (cephalic), neck (cervical), chest (dorsal), back (lumbar), and pelvis (sacral and coccygeal). (Fig. 344 c, d, e; Fig. 345 o, p, q.) The groups of the ganglionic nervous system are composed of a great number of nerves, interwoven with one another, and surrounded by blood vessels. The pelvis and chest cavity contain the largest groups of nerves, which generally entwine some of the nerve ganglia. The largest group in the pelvis is called the “solar plexus.” It is behind the stomach, and entwines the common iliac artery.

Brain, Arterial Obstruction in the, arises from clots originating in various parts of the body, and carried there by the blood. The exciting causes which are favourable to the conveyance of a foreign body into the brain are disorders of the heart, lungs, aorta, etc., when inflammatory deposits of all sorts break away from the diseased organs, are carried in the blood to the left cavity in the heart, thence to the brain. But even in the brain arteries, as a consequence of chronic inflammation of the walls of the blood vessels, thrombi, consisting of blood clots or similar conditions, may be formed. They are known to result from spontaneous deposits in syphilis and alcoholic poisoning. Fevers, typhus, or inflammation of the lungs, may cause a formation of clots in the brain arteries (apparently spontaneous), and set up an obstruction.

The symptoms resemble those of a sudden attack of apoplexy (see “Apoplexy”), and often of epilepsy. Headache and congestion in the head, dizziness resulting in perfect unconsciousness, and other similar signs. But an attack of obstruction of the brain arteries is generally less severe, and of shorter duration than apoplectic seizures. It more closely resembles epilepsy. But as the illness advances, the symptoms of both attacks seem to coincide with one another. Slight cases recover somewhat in two or three days, but severe ones may last for weeks before improvement sets in. The diagnosis of the illness is not a very easy task, owing to the similarity of the symptoms with those of apoplexy, but the following distinctions may be noted: The apoplectic symptoms arising from formation of thrombi in the

brain arteries are generally seen in people suffering from heart disease, or those between twenty-five and thirty-five years of age. Premonitory signs, as sickness, convulsions, etc., are about the same. After the attack the patient is speechless, and mostly paralysed in the right side. Apoplexy occurs mostly in persons who are elderly and well nourished, with red countenances, after the following premonitory signs: Flickering in the eyes, singing in the ears, dizziness, headache, hardness of hearing, tickling in hands and feet. During the attack the patient is often sick; after it, power of speech returns, if but imperfectly. The paralysis attacks only one side, or only single parts. The course of the illness varies very much. If important arteries are obstructed, death may ensue on the spot. But if it be overcome, a relapse may occur if the principal trouble, first occasioned by the formation and freeing of the fragments, be not set right.

The proper treatment is as follows: Strip the patient quickly, and put him in a half-bath, 77° to 80° F., and pour water, 68° F., over him, and apply a rather wet compress, 68° F., without any wrappings, to the head and forehead. The bath lasts from five to seven minutes. Then rub the patient dry, and put him to bed. Rub his feet first, with the bare hand, and then apply a hot water bottle. Then an enema, 72° to 77° F., and a small cold one at 63° F. After an interval of half-an-hour, or an hour, repeat the above until the changed conditions require different treatment. Instead of the half-bath, give a body bath, 72° to 77° F., or a wet rubbing down, 68° to 72° F. During these water applications, and directly after them, thoroughly well rub the legs, first rubbing them wet and then dry, to draw away the blood from the head. Do not omit continual application of enemas, hot water bottles, and compresses on the head. When the patient is in bed, during the intervals in the above course, put bandages round the body, 77° to 81° F., and stimulant packs on the calves, 63° to 68° F. Cold baths at the natural temperature, body packs, 77° to 81° F., afterwards three-quarter packs, 72° to 77° F., may be beneficial, if careful attention be paid to the duration of each proceeding and of the necessary intervals. Massage of the neck is also very useful. The diet should be plain and low, mainly vegetarian.

Brain, Atrophy of the, consists in a shrinking or wasting away of the brain tissue. Most frequently it occurs in very aged persons, imbeciles and lunatics. The causes

are most frequently found in previous inflammatory affections of the brain and its membranes. There is, as a matter of fact, no remedy for it. The treatment consists in fighting against one or other symptom in the ever-changing and varied conditions. The instructions for "General Strengthening" are recommended.

Brain, Concussion of the, results from violent shock to the brain, as by falling, or a severe blow. The result is frequently fatal, but convalescence is very tardy. The symptoms are unconsciousness, cold and pallor of the skin. When consciousness returns, impediments of the speech, dizziness, headache, troubles in the eyes and ears and powers of thought, often remain.

The treatment is the same as for "Obstructions in the Brain Artery." Lay the patient in a cool, airy room, raise the head a little, and rub the limbs, with water first, and then without. (See under "Hanging," "Strangling," for means of restoring consciousness.)

Brain, Dropsy of the (Hydrocephalus), is caused by a collection of serous fluid in the cavity of the brain and between the interior and exterior membranes. It may be congenital, or it may develop after birth in an acute or chronic form. The actual cause of the first form is still unknown. More or less diseased parents may doubtlessly be regarded as one of the principal causes. The disease is set up by disorders of the blood and humours (scrofula, rickets, tuberculosis, syphilis, cancer, etc.), by diseases of the brain (inflammatory discharges of the pericranium, inflammation of the brain tissues, brain tumours, thrombosis or embolism, etc.), by faulty circulation (certain forms of cardiac and pulmonary complaints, etc.). Early childhood is the predominant age for the disease. The symptoms are easily discernible in the abnormal growth of the head. Congenital cases may render a natural confinement impossible, the size of the head preventing the birth. In many cases mechanical means are resorted to, in order to relieve the mother of her offspring. In other cases the child comes into the world with an apparently normal head, but in a few weeks its size increases so rapidly, that at the end of a twelvemonth the measurements are twenty-five to thirty-three inches, which, in a healthy child's head, at the end of his second year, should be only about seventeen-and-a-half inches. Concurrently with the increase of the skull, the weight of the head grows greater, so that the poor

little thing has to support it with its hands, as it runs or walks, to prevent the nodding to and fro, and to avoid falling backwards or forwards. The face, in sharp contrast to the enlarged skull, looks, small, and thin and sharp. Through the thin scalp and the scanty hair the bones of the skull seem intensely white, and the blue veins are very distinct. The general health is very unsatisfactory. The skin of the entire body looks thin, transparent, dry and flabby; the muscles are weak, and the entire development is stunted. As to the mental powers and faculties, there are none. The pitiable little ones are unable to concentrate their attention on one subject; their senses are dulled; they learn to speak with great difficulty, and even are generally incomprehensible. Many children become imbecile, cannot control their natural functions, and must be tended like infants. Their sufferings terminate in death at the end of months, or even years. Cures are not frequent. Water on the brain in childhood above seven years of age, and in adults, presents nothing unusual in the shape of the head, as the cranium has become hardened, and able to withstand the pressure of the water. But even here recovery is unlikely.

The tentative treatment of congenital or acquired water on the brain can only be found in strictly carrying out the regulations for "General Strengthening Treatment." Sun and air baths, together with hip baths, 81° to 86° F., bed vapour baths No. 3, massage of the body, soothing, tepid baths and ablutions in water, 81° F.; all these, judiciously alternated for corresponding periods, with careful observance of necessary intervals, are the best remedies. Food must be entirely solid, avoiding anything such as meat.

Brain, Inflammation of the, may be of varied kinds, depending upon whether the tissues or membranes are affected. Let us first consider those of the membranes.

A disease, by no means rare, is a bloody inflammation of the dura mater on its inner surface. The causes are: Injuries to the skull, alcoholic poisoning, injuries to the brain (swellings, softening, etc.), infectious diseases (typhus, small-pox, scarlatina, puerperal fever, etc.), inflammation of surrounding organs which spreads to the dura mater, obstructions in circulation, certain heart diseases or lung complaints, debility of all kinds, and defects in the blood and humours.

The symptoms of inflammation in the dura mater are regulated by the extent and degree of the rush of blood.

Milder cases seldom cause very startling symptoms, as those of the fundamental mischief are too prominent; but greater accessions of blood, on the contrary, which generally occur near the crown of the head, cause symptoms very like apoplexy. The patient collapses, and remains for hours, days, even weeks, in the same cataleptic condition. If the sudden pressure of the blood on the brain be very severe, and there is not speedy relief, death ensues. In some cases an abnormal drowsiness comes on instead of unconsciousness. The patient is more or less insensible, does not know where he is, performs natural functions unconsciously, and has to be fed mechanically. According to the locality of the accumulation, convulsions of one side of the body, or of single parts, impediments in speaking and general cramp, will come on. The breaking out of this latent suffering is found mostly in men, at ages ranging from forty-five to fifty. The course taken by the disease varies. If the attack is not fatal at once, a gradual recovery may be the result, provided a very temperate life be led for another ten or fifteen years. There are, meanwhile, occasional relapses endangering the patient's life.

The treatment must be most carefully carried out. If the patient, in consequence of an important flux to the brain, be dangerously ill, everything must be done to draw the blood from the brain and restore normal circulation, according to instructions given under "Obstruction of the Brain Arteries." If the condition to be relieved is one of prolonged unconsciousness, or inordinate drowsiness, wash the patient gently two or three times a day, in water at 72° to 77° F., but wash upwards, beginning at the feet. He should be dried very carefully, nor must he be moved about on the bed unnecessarily. While kept to his bed, use body bandages, at 72° to 77° F., and thick stimulant extra compresses on the abdomen, at 72° F., also packs on the calves about 68° to 72° F., and, at first, compresses on the forehead about 65° F., renewing them every ten minutes; these will be exchanged later on for stimulant packs on the head, at 72° to 77° F. If the first threatening symptoms be overcome, begin massage of the entire body, but very cautiously. Begin all stroking and kneading at the feet, rub upwards and very gently. To keep the bowels in order, administer enemas at 77° F., but the patient must on no account leave his bed, and a suitable appliance must be used (p. 413). Strict cleanliness must be maintained, to

prevent bed sores. The membranes of the cheeks, tongue and teeth must be cleansed many times a day with a linen rag, to remove the saliva flowing from the mouth, and the nostrils should be cleared with medicated wadding, and the eyes must be screened from bright light. In a word, all instructions given for the care of the sick (I., Chap. 38) should be minutely carried out. The diet must be liquid, and of a mild nature. Raspberry syrup or lemonade, milk, stewed apples or plums, oatmeal, groats, or rice milk, may be taken. When the worst is over, give the patient a body bath every other day, at 90° F., or a half-bath at 92° F., then a daily bath, then two a day; reduce the temperature gradually, and go on as advised in I., Chap. 30, "General Strengthening and Recovery." Finally, adopt massage, curative gymnastics, and gentle hydropathy.

Brain, Inflammation of the Arachnoid and Pia Mater Membranes of the, which generally results in abscess, is, with its varied complications, even more frequently met with than that of the dura mater. The inflammation of the two inner membranes of the brain is mostly the result of some other disorder, though it may also be independent. Among other numerous causes, I may mention the following: Diseases of the brain itself, eruptive disorders and abscesses of the skull and face, as erysipelas of the face or head; wounds on the skull; diseases of the skull-bone, such as caries; festering of remote organs, especially such as are connected in forming the abscess, and, as a result of this, an admixture of the festering matter in the blood and lymph passages to the brain often sets up. Festering inflammation of the organs of the chest and body may result in inflammation of the pia mater, and infectious diseases have the same results. On this account, in consequence of the complicated nature of the fundamental cause, the diseased state of these two membranes is very variously developed, and in many cases the real disorder is quite hidden. In many cases the symptoms are as follows: Violent headache at different parts of the membranes, varying a good deal as to intensity; dizziness, congestion of the head, obstruction in the sight, sensitiveness to light and sound, cramp in the chin, constipation, sickness, unconsciousness, delirium, general cramp, convulsions, and paralysis of one or other part of the body or limb. If the inflammation is at the back of the innermost part of the skull, a condition similar to wry neck

sometimes occurs. The urine is very sparse in quantity. The temperature of the body rises to 104° F. or 106° F., and even higher. The suffering generally lasts only three or four days, very rarely ten. The result is usually death, which follows in perfect unconsciousness, generally accompanied by convulsions, and a temperature up to 109° F.

The treatment aims at reducing the flux to the head, and the accompanying fever. Give the patient, two or three times a day, a bath at 84° to 90° F., for twelve to fifteen minutes, and in the intervals, day and night, body packs (stimulant), at 77° F., or chest and shoulder packs at 72° F., and body bandages at 77° to 81° F., also irritant neck packs at 68° to 72° F., counter inflammation compresses on the head at 63° F., and on the calves at 72° to 77° F. All these applications must be renewed as soon as they get hot, and the parts they have been on should be washed, except the head, with water at 68° to 72° F., before laying on a fresh one. Shivering necessitates the application of a short, soothing, bed vapour bath, No. 3 or No. 4. Cold extremities must be warmed with hot water bottles (pp. 183, 184). Enemas, at 77° F., must not be forgotten, followed by small cold ones at 63° to 68° F. If the patient is very restless, instead of the three baths, wash him in water at 72° to 77° F., and do not dry him. When the worst is overcome, and the patient is conscious, reduce the number of the water applications by day, and discontinue the wet bandages at night. Irritant packs on the head at 72° to 77° F. may now be applied during the day. Any remaining stiffness of the neck may be reduced by gentle massage. Bathing the head in water at 77° to 81° F. is very beneficial. I cannot sufficiently emphasise the warning against applying ice bags to the head (pp. 247, 248). As regards diet, ventilation, and other requirements of the sick, the remarks in Vol. I., Chap. 38, apply. The patient must keep his bed until all danger is past, and his head must be raised.

Brain, Inflammation of the Membranes of the.

(See "Brain, Inflammation of the.")

Brain, Inflammation of the Pericranium, Cephalalgia; Inflammation of the Brain and Membranes of the Spinal Cord; Stiff Neck.—Epidemic stiff neck, which is a complaint arising from a suppurating inflammation of the tissue of the pia mater and of the spinal cord, and attacks many persons at the same time. Overcrowded barracks,

private houses, lodging houses, and other establishments in which human beings are huddled together like sheep, are the principal localities where this epidemic is found. Touching the causes of a general inflammation of the pericranium, or of the membranes of the spinal cord, the existence of possible germs, whether it is an epidemic or miasmatic disease which enters the body and affects the organs mentioned, the parts which the supposed germs attack in the body to attain their purpose, or whether incidental causes, such as colds, drenchings, damp dwellings, the use of diseased food or of bad water, facilitate the outbreak of the epidemic, we are still in ignorance and clouded obscurity that perhaps time will illuminate. Suffice it to say, the disease has been many years in existence, and we will now treat of the facts regarding its symptoms, its course, and its natural treatment:

The precursory symptoms, which, however, do not always appear, are as follows: General weakness, lassitude, pain in the limbs, general listlessness, headache, general incapacity. The breaking out of the disease is generally preceded by a severe shivering, then a peculiar, severe, torturing headache, getting worse and worse, which is felt in the crown of the head, or in the brow and temples at times, but more often in the back of the head. There are also violent pains in the back of the neck and the back, indeed, the entire spinal column seems specially sensitive. It stiffens, in some cases it even bends outwardly. The head is drawn spasmodically backwards and downwards. It is then quite immoveable because of the stiffness of the muscles, and it is sometimes impossible, even with force, to bend it forward. This extremely peculiar characteristic is always present, and gives rise to the name "stiff neck." Other symptoms include vomiting, dizziness, feverishness up to 104° F.; unconsciousness, delirium, convulsions, cramp of the facial muscles, buzzing in the ears, loss of appetite, constipation, and in many instances an eruption on the face. The disease attacks children and juveniles. Its duration varies considerably. Cases that have fatal results generally last a few days only, those of an intermittent character four or five weeks, and even more. But there are also cases when the epidemic is light, which run a favourable course, with very light symptoms. But from these mild cases severer cases may arise. It is in this that it resembles epidemic diseases (cholera, smallpox, typhus fever, influenza, etc.). If injudiciously

treated, stiff neck is followed by other diseases, impediments in the speech, weak eyes and defective hearing, nervous debility, epilepsy, paralytic attacks, etc.

The treatment is the same as for "Inflammation of the Arachnoid and the Pia Mater."

Brain, Inflammation of the Substance of the, is more rare than any of the other inflammatory disorders described above. The causes and their transformations into circumscribed abscesses are many, and often similar to inflammation of the membranes or obstruction of the arteries.

Of fundamental causes the following are the chief:

Mechanical injury to the head, caused by a blow, push, fall, stab, shot, or fracture; inflammation and suppuration of the outer skull, especially of the petrous portion of the temporal bone; neglected chronic abscesses in the ear, etc. Slighter forms of inflammation of the brain tissue frequently disappear, without having set up any alarming symptoms, especially when it runs a slow course. Severe inflammation is accompanied by severe headaches, varying in kind; physical disturbances, weakness as to thought, dizziness, insomnia, unconsciousness, delirium, insanity; in other cases, paralytic weakness of some muscles, with frequent variations; squinting, impediment in speech, epileptic condition, partial blindness, depression of spirits, sudden emaciation, weakness, etc. Fever is inevitable; shivering, alternating with great heat. The duration of this illness varies — acute cases may terminate in a few hours fatally, or they may last ten days or a fortnight, the strength gradually decreasing before death ensues. Chronic cases may drag on for months, even years.

The treatment is the same as for "Inflammation of the Arachnoid and Pia Mater."

Brain, Inflammation of the Tissue of the. (See "Brain, Inflammation of the.")

Brain, Mental Disorders.—By these we understand disturbances in the feelings and thinking powers, or a departure from the usual form and expression of them, which lasts for a longer or shorter time. These are closely and intimately connected with the entire range of thought and feeling in the person affected, and have thus assumed a diseased character. However, it is not the mind—the immaterial in man — that is diseased in these derangements,

but the brain, and therefore mental disorders are diseases of the brain. The diseased changes in the brain occasion, at the same time, changes in one's action as a natural consequence, and this gives the impression of mental incapacity, of derangement of the mind. But as it very frequently happens an unusual tendency of the mind is noticeable together with ordinary and healthy brain action, it is no easy matter to distinguish the former from actual mental derangements. It is proved by experience that many a one is insane without the fact being known to those around, and that many a perfectly sane person, with an apparently distorted tendency of mind and feeling, is regarded as mentally afflicted. Peculiarities in the feelings, which do not at all coincide with disorder of the intelligence, are not generally considered purely mental derangements. This is the case in a number of nervous complaints, hypochondria, hysteria, epilepsy, etc.; also in the earlier stages of heated, feverish illnesses, in which, as a rule, a discordant state of mind and a marked depression indicate a disordered condition of the feelings. Since disorders of the mental powers are often merely a consequence of the state of the feelings, and these again, in the course of the illness, result in disorders of the reasoning powers, these diseases are termed melancholia. On the other hand, and conversely, disorders that arise with irritation of the intellect, producing a corresponding symptomatic appearance, and only in the course of the illness acting upon the feelings, are termed "Mental Disorders." We generally divide these under three headings: Mental, with derangement of the reasoning power, predominating; imbecility, when the mind is mainly afflicted; and mania, when both mind and reasoning power are diseased, and that to a high degree. As to the causes of mental disorders, opinion is greatly divided. Often diseases of the mind are complications, or the result of others, especially nervous complaints. Heredity also plays an important part in the existence of madness. Poisonous drugs, as well as the abuse of narcotics and alcoholic stimulants, contribute to it, psychical causes, such as anxiety, sorrow, excitement, mental exertion, fear, do not exist. These are merely the starting-point for an existing condition; for a hitherto latent brain trouble, which is either hereditary, or is developed from any excess in whatever direction; poisonous drugs, insufficient food, defective care of oneself, unusual clothing, bedding and

residence, and specially one and every neglect of hygienic measures.

The treatment of the various forms of insanity must be the work of a doctor well-trained in psychology, if possible a disciple of Nature. If anyone is in the sad position of being compelled to place a relative in a lunatic asylum, he should be careful to choose one under government control and inspection. Do not on any account entrust your charge into the walls of a private institution, where government inspection resolves itself into a "medical farce."

The recently-divulged horrible conditions in the Maria-berg Institution, at Aix-la-Chapelle, in which the amount of the Medical Superintendent's salary depended on the number of patients, so much being drawn per head, as well as disclosures respecting many other private institutions, render great care as regards these asylums very necessary. Every independent person must acknowledge that a curable case stands a better chance of recovery where owner and physician are not one and the same.

Brain, Overflow of Blood to the.—This generally results from increased action of the heart, which forces too much blood to the brain. If the heart is healthy, and the blood vessels possessed of their ordinary powers of resistance, the overflow of blood is temporary. But if these conditions are not fulfilled, the trouble will ensue more rapidly and last longer, and may become chronic. We then call it congestion of the brain. Either a temporary or lasting overflow of blood may be occasioned by intoxicants, excessive mental work, emotional excitement, or by limited reflux of the blood from the brain, as by twisting the neck, by coughing, strong pressures, etc. The dark colour of the face (bluish) in certain disorders of the heart and lungs indicate a repression of blood in the brain. The signs of superabundant blood in the brain are scarlet face, and sometimes just the contrary; pallor, headache, dizziness, insomnia, and, when asleep, vivid dreams; restlessness, excitement, aversion to light, flickering in the eyes and singing in the ears; in severe cases, delirium, convulsions, general cramp, madness, etc. Sometimes opposite symptoms appear — want of feeling, outward pressure, indifference, apathy, drowsiness, and in many cases even complete unconsciousness.

The treatment should be applied to the fundamental cause. If excessive flow of blood to the brain causes

congestion, it will be best to apply the "General Strengthening Treatment," in which care is taken to divert blood from the head. To regulate the circulation, on alternate days try massage from head to foot, every morning on rising wash from head to foot with water 72° to 77° F., a wet rubbing down, 77° to 81° F.; at night use a leg or foot bath, or foot vapour bath, followed by washing the feet with water at 68° to 72° F.; daily one or two body baths at 81° to 86° F., lasting ten to fifteen minutes, or sitz baths of the same temperature and duration, and the Movements Course No. 3 of the Active Simple Curative Gymnastics. Enemas at 77° to 81° F., followed by small cold ones at 68° F., are very soothing to the brain. Or instead of the body baths, begin with affusions for the knees and thighs; increase this to using one of the two twice a day; further on, use affusions to the upper parts, then again twice a day, and go on until the full course is attained. In some cases cold water baths, walking and standing in water and on cold stones, are useful. Walking barefoot is important in treating the chronic form. Once or twice a week take a bed vapour bath No. 3, or two of Kühne's chair vapour baths (providing no disease of the heart prevents), and air and sun baths are most beneficial.

The diet should be plain and simple. Alcoholic drinks, coffee, tea, etc., must not be taken. If the flow of blood from the brain is retarded, use, once or twice daily, massage of the head and neck; apply stimulant neck bandages several times a day, as well as the Scotch chest bandage, both at a temperature of 72° to 77° F.; also neck compresses, at 63° to 68° F.; and use affusions and vapour baths for the arms; stimulant packs, at 63° to 68° F., to hands, wrists, and calves, or hot baths for one hand or foot at a time (p. 541); also apply stimulant packs to neck, body, and legs, at night. In unconsciousness, or other occurrences, apply the instructions given under "Obstructions of the Brain Arteries," or lay the patient down, raise the head on a horsehair cushion if possible, apply hot baths to one hand or foot at a time, apply irritant packs to hands, wrists, feet, and calves, at 63° to 68° F., enemas at 63° F., and try by every means to draw the blood away from the head.

Brain Œdema occurs in consequence of a serous fluid which exudes through the brain and its membranes. From this result softening of the brain and apoplexy. (See under these headings.) The treatment must aim at any disorder of

the system; in most cases it is the same as for inflammation of the dura mater.

Brain, Over-nutrition of the, shows itself as a peculiar increase and extension of the brain tissue. The causes are unknown. The disease has many phases. The treatment is that given under "Brain, Tumours of the."

Brain, Paralysis of the, attacks partly the brain, the spinal cord, the continuation of the spinal cord, the point of departure of some of the cranial nerves, also the nerves of the face, the legs and the tongue. Tongue, lips and throat are all paralysed to a certain degree. It seldom occurs before the thirtieth year, but from this period of life its appearance is more and more possible. It is not easy to detect the causes of the disease. General disorders, constitutional troubles (syphilis, etc.), concussion of the brain, physical and mental strain, long or frequent physical over-exertion, colds, etc., all lead up to the fatal moment of brain paralysis. In the course of development, a diminished movement of the tongue and laboured speech are soon noticed. These symptoms increase as time goes on, until, at last, speech, chewing and swallowing are impossible. The speech is indistinct and hoarse, and administered food returns through the nostrils. When, finally, the approaching paralysis of the vocal organs and the spinal cord sets in, the patient presents a pitiable example of great misery and complete helplessness. The duration of the illness extends over months, and even years, and a cure is only possible in the earliest stage.

The treatment consists in strictly observing the regulations for the "General Strengthening Treatment." Soothing and wet rubbings of the legs and feet (water 68° to 72° F.), in connection with dry, brisk friction afterwards, bed vapour baths No. 4, gentle massage of the whole body, soothing massage of the neck, daily entire ablutions, etc., are the principal factors in the treatment of paralysis of the brain. The diet should be non-stimulant, digestible, and mainly vegetarian.

Brain, Pia Mater, Tuberculosis of the, is undoubtedly the result of the disease in other parts, especially the lungs. But it may also arise from a repressed inflammation of the lining membrane of the thorax, which is frequently of this nature. Tuberculous disorders of the joints and bones, especially in children, or other deposits or repressed diseases of this class, when occasion offers, may cause tuberculosis of the brain. Although it occurs in adults, children of the ages

between two and seven are generally the victims. Weeks before the disease is quite developed, premonitory signs appear — unhappiness, crying, grumbling, timidity, sleeplessness or restless sleep, loss of appetite, sensitiveness to light and noise, general weakness, emaciation, dulness, etc. When once it appears, the poor little sufferers complain of headache; they are very restless, and stretch their arms and legs upwards. In the further stage, constipation, retention of urine or involuntary discharge, nausea, sickness, sensitiveness and stiffness of the neck and spinal column, convulsions of the face and limbs, partial cramp or paralysis, delirium and insensibility, are the complications. Fever sets in, and the temperature runs up to 100° to 104° F. The illness itself, without reckoning, the earlier symptoms, runs on for one or two weeks, and is generally fatal.

The treatment is the same as for “Inflammation of the Arachnoid and Pia Mater Membranes of the Brain.”

Brain, Recession of Blood from the, may set in, either suddenly and independently, as a result of great emotion (fear, fright, etc.), or after great loss of blood; or it may come on gradually, as a result of constitutional illness, as pallor, anæmia, etc., after protracted suffering, accompanied by loss of tissue; and also in consequence of exhaustion after great exertion, and long abstinence from food and drink, etc. It also occurs in people suffering from congestion in other parts of the body, as the overflow of blood in the congested organs impoverishes the brain. It may also arise from a contraction or closing of the passages leading to the brain, or formations and accumulations of fluid may bring about the trouble. Irregular and weak action of the heart may cause a deficiency of blood in the brain by creating an insufficient supply at head-quarters. It may also result from nervous influences, resulting in convulsive contraction of the blood vessels of the brain, without the heart being at all affected by it. Persons suffering from loss of blood and tissue, or anæmia, often have insufficient blood in the brain, when they suddenly rise from a recumbent position.

The symptoms of a sudden attack of this illness are dizziness, flickering in the eyes and dark circles under them, ringing in the ears, unconsciousness, fainting, obtuseness, and either complete want of motion, or convulsions, drowsiness, etc. In gradual cases we often notice the peculiar anomaly, that the complications are barely distinguishable from congestion

of the brain. To this may be attributed the difference of opinion among medical men, one of whom will pronounce a case to be "Absence of blood," and another "Too much blood." But close observation of the patient soon detects great differences.

The treatment of sudden cases must be simply palliative. Turn to instructions given under "Bleeding" and "Fainting." As a rule, brisk, powerful, wet friction of the whole body, 68° to 72° F., is sufficient, if it is not a question of staunching blood, which requires a horizontal position of the body, and a compression or binding up of the opened vessels.

In gradual cases (following general ill-health), recession of blood from the brain, the cure of the main disease is the chief thing. Follow the "General Strengthening Treatment," and undergo a daily gentle massage of the head (see remark, p. 668), and apply the packs (stimulating) to the head, 72° F. (Fig. 83), for they are very beneficial. Kneipp's head douche is also excellent. It can be applied daily, or on alternate days. The Movements Course No. 1, of Simple Active Movements of Curative Gymnastics, should be gone through once every day.

Brain, Softening of the, is a term often misunderstood by the public, as expressing an incurable disease, generally creeping paralysis of mentally deficient persons. Its cause, however, is not a diminution of the brain, but extended inflammation of the grey matter. The actual disease is generally found in old men, at the commencement of advanced age, and is a result of obstruction in the brain blood vessels, while a certain part of the brain tissue dies away in consequence of a contracted supply of blood, and becomes a pasty, greyish, brownish, or reddish mass. Lessening of the power of thought and memory, paralysis of one or other parts of the body or single limbs, as well as impediments of speech, are the signs which are most seen.

The treatment must be applied to the fundamental cause, but is generally futile. Apply the "General Strengthening Treatment," as well as that for "Bloody Inflammation of the Dura Mater."

Brain, Tumours of the; Formation in the Pericranium, Blood Vessels of the Brain, and Tissues of the Brain and Brain Substance.—There is a distinction in swelling on the brain, viz., fleshy tumours, tumours of the nerve tissue, cancerous tumours and sandy tumours. Very frequently, formations in the brain

result from previous injuries to the bones of the skull; their existence is often observed in a predisposition to tuberculosis and syphilis. The symptoms indicating a tumour are usually as follows: Severe headache, attacking the entire head, though worse on the side of the swelling; dizziness, loss of thinking-power; obstructions in speech, sight, hearing and circulation; loss of appetite or excessive hunger; vomiting, especially on awakening; attenuation, weakness, debility, insomnia, etc. In further stages, it often develops into water on the brain (hydrocephalus), delirium, imbecility, madness, convulsions and paralysis. The duration of the disease may be either for months or for years, and recovery is rare. Death ensues either after long suffering, after previous paralysis and blindness, in unconsciousness; or it follows after some special shock, in the guise of inflammation of the brain, or after apoplexy. In many cases the fatal ending is caused by the bursting of the tumour outwardly, by which festering and suppuration of the tumour and its surrounding tissues is caused.

The treatment is the same as that of inflammation of the tissues and membranes (soft) of the brain. Palliative treatment of the most troublesome symptoms is the great matter. The use of compresses for the head, at a temperature of 77° to 81° F., in alternation with stimulating compresses at 72° F., will relieve the violent pains in the head, especially if applied in conjunction with enemas (72° to 77° F.), stimulating compresses on the abdomen at 72° to 77° F.; 68° to 72° F. packs on the calves of the legs, as well as occasional bed vapour baths No. 4; 66° to 72° F. hip baths; also 66° to 70° F. trunk baths, remaining in the last two to five minutes, to draw the blood downwards.

Brain, Water on the. (See "Brain, Dropsy of the.")

Bran and other Baths. (See Index.)

Bran Bread. (See "Graham's Bread.")

Bran Tetter. (See "Tetter.")

Breathing, Artificial (Artificial Respiration). —

The method of stimulating breathing, as applied to people choked, drowned, strangled, etc., is to alternately expand and contract the chest walls, so as to supply the lungs with fresh air. Firstly open the mouth of the patient, draw the tongue out, and fasten it by means of an elastic band, cord, or bandage. (Figs. 349 to 352.) Place the patient flat on his back, raise the upper part of the body by placing a cushion underneath, or a rolled-up coat, overcoat, jacket, etc. Now stand behind

the seemingly-dead person, take hold of both his arms just above the elbow, raise them, quietly, carefully, and at the same time in an upright position, then draw them downwards towards the head and keep them two to three seconds in this position (Fig. 349); this increases the chest capacity longitudinally, and fresh air is assisted to enter the lungs;

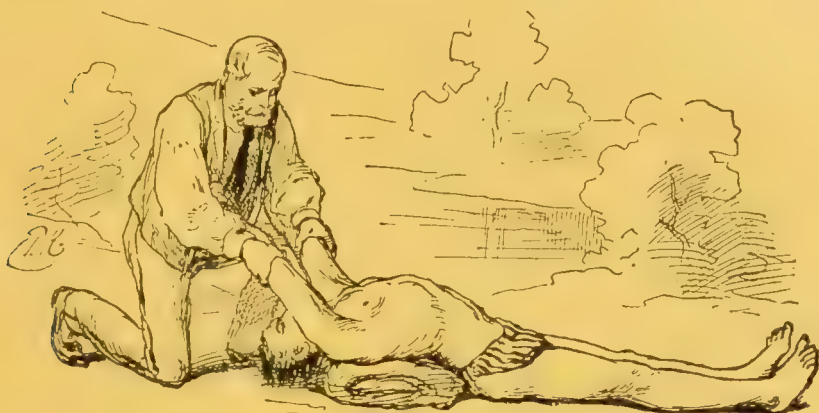


Fig. 349. Artificial Respiration (Position 1).

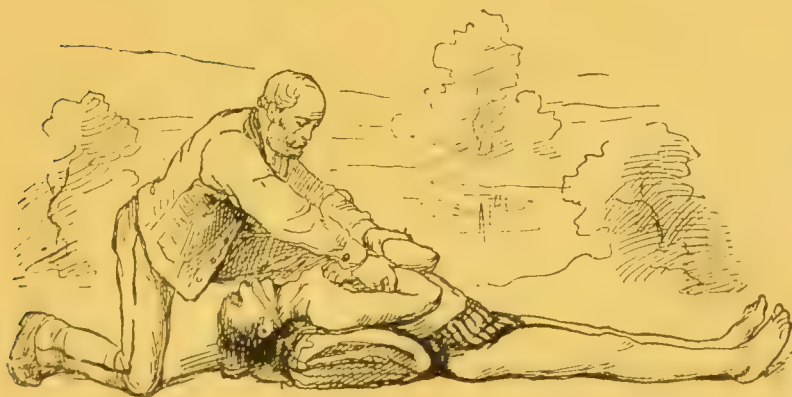


Fig. 350. Artificial Respiration (Position 2).

now guide both arms back again, as described below, and press them firmly but gently for two or three seconds against the sides of the chest walls (Fig. 350). If two people are available, each grasps one arm of the patient, and by counting one, two, three, four, etc., carry out the same movement together. The movements for stimulating artificial respiration are continued at the rate of about fifteen to twenty per minute,

until the patient shows signs of breathing movements on his own account. Particularly notice the face of the patient, as it changes colour at the first inspiration made by his own effort. A pale face reddens, a livid bluish red face becomes pale.



Fig. 351. Artificial Respiration (Pressing the Chest, Position 1).

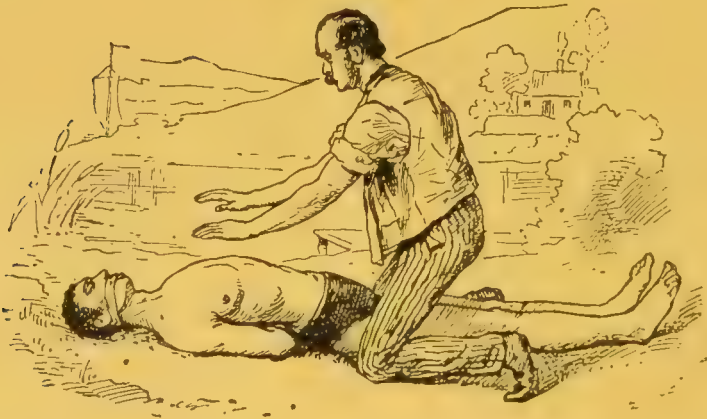


Fig. 352. Artificial Respiration (Pressing the Chest, Position 2).

Another very efficient method of exciting respiration is pressing the chest. The patient is placed on his back; under the hollow of the back place a rolled pillow or article of clothing. The tongue is pulled out and fastened; or, better still, let a second person, kneeling over the head of the injured person, hold the tongue towards the right corner of the

mouth, by means of a dry handkerchief.* The assistant kneels crossways over the upper part of the thighs of the patient, and places both hands flat on the lower chest wall. Now the assistant fixes both elbows in his sides, and stoops slowly and carefully — bringing the whole pressure of the weight of his body into account—and forwards, until his face nearly touches the face of the patient. This presses the air from the lungs of the injured person. Now the assistant quickly rises, and takes his hands off to allow the chest to again expand and air to enter the lungs. (Fig. 352.) This process should be quietly (without flurry, and in regular time) carried out, counting one to four, and continued so long, until the patient breathes by his own effort. (See further, under “Hanging,” “Suffocation,” “Drowning,” etc., in Index).

Breathing, Difficulty of; Want of Breath; Heavy-Breathing.—The usual cause of difficult breathing is an excess of carbonic acid in the blood, which causes in the organs of respiration an unhealthily-increased action, in order to supply the requisite amount of oxygen. Mis-shapen chest walls (curvatures of the spine), organic changes in the organs of the chest, pressure from swollen glands on the bronchial tubes, deformities of the throat, foreign bodies in the same, obstructions in the nostrils, etc. Very frequently also it is caused by morbid growths in the throat, causing the opening in the upper part of the larynx to become narrower. This complaint may also be caused by forms of disease in which there is an insufficiency of red corpuscles in the blood, which are the carriers of oxygen, as in anæmia, poverty of blood, or extensive loss of blood, etc. Also abdominal blood engorgement, or a diseased, abnormal state of the abdomen, pregnancy, diseases of women, diseases of the spinal cord, inflammation of the brain, poisoning, etc.

The treatment must be directed to removing the cause of the disease, but where we are unable to trace the cause, the General Strengthening Treatment should be carried out. (See this.) Constant fresh air is absolutely essential. Rational “breathing exercise” (see “Breathing Exercise,” in Index) should be taken, the throat, chest and back being frequently

* If any difficulty is found in getting the tongue out, in holding it or securing it, the second person, kneeling over the head of the injured person, may, by means of one hand each side, depress the lower jaw and keep it in that position.

subjected to the muscle beating and kneading treatment by some one in sympathy with the patient. (See "Massage.") Take much walking exercise barefooted, use air and light baths, and use the Exercises No. 8 of the Gymnastic Treatment. Nutrition should be plain, non-stimulant, and easily digested. Fatty foods, more particularly rich farinaceous or egg foods, are to be avoided, also drinks containing narcotics or alcohol, but fruit (raw or cooked) should be taken in plenty, buttermilk, milk foods, young vegetables, lean meat—this diet should keep the bowels regular.

Want of breath in children is mostly the result of some inflammatory affection of the organs of respiration, diphtheria, bronchitis, whooping-cough, spasm of the glottis, etc. (See further, under the various complaints, in Index.)

Breathing Exercise.—Deep, slow inspirations through the nostrils, then a lengthy pause, during which the air is retained in the extended chest walls and expanded lungs, now letting the air out slowly, and emptying the lungs as much as possible. This exercise, frequently used during the day, not only strengthens the muscles connected with respiration and increases the chest measurement, but also increases the red corpuscles and oxygen in the blood, and removes, in the quickest manner, excess of carbonic acid from the blood, improves the circulation and distributions of the blood, relieves the tension of the other muscles of the body, assists the digestion, promotes the nutrition, and, in fact, produces a higher percentage of assimilation—the process of life. The care and culture of the respiratory organs, and the care of the skin, are the two hygienic requirements most neglected, and the neglect of which produces the greatest evils of any amongst civilized mankind. If it is true that disease originates in an unnatural way of living, it is certainly the case in diseases of the lungs, considering that about eighty per cent of the ailing of civilized nations suffer from lung disease. The majority of mankind who live in the open instinctively breathe well, and need no breathing exercise in the midst of a wide, pure, free, fresh air-ocean, in which the lungs can expand and fill themselves with the healing life-elixir. It is, of course, different with the stay-at-home, the clerk, the shop-mechanic, factory-hand, scientific and artistic people, etc., who are cooped up in a "human stable" during the week, and seek the fresh air Sundays and holidays. If these individuals do not want to go "to the wall" in their restricted four walls, or suffer long

illness, they must learn to do that which an open-air person does instinctively and without effort — voluntarily, and at certain times, “take breathing exercise.”

Dr. Paul Niemeyer, an authority on sanitary science, says, in his little book “The Lungs,” p. 95 :

“The largest number in our community have lost the art of proper breathing, as evinced by the small number of respirations in the adult, whilst the newly-born, fresh-breather, cannot satisfy the appetite for air with less than forty-four respirations per minute—the five-year old child is credited with only twenty-six, and the adult with even only sixteen per minute.

“The difference is also apparent in the inflation caused by each breath. Notice more particularly the newly-born child, how it stretches after the bath, throws the head back, the arms upwards, places the feet against any object, and expands the chest, in fact, “breathes with all fours.” More scientifically, the whole body is put in such a position as to increase the diameter of the chest-casement in every direction, and fill the same with fresh air and life-energy.

“The older individual cannot adapt the breathing system to quite such a primitive and curious way; but as he assumes the upright position, this affords him the same facilities for the movements of the body which, in the infant, afford a full supply of air to the lungs, and this is quite as essential to the adult. The breathing movement keeps pace with the movements of the limbs, and it therefore follows that gymnastics, walking, swimming, riding, rowing, skating, etc., must be good for the development of the lungs.” So much for Dr. Niemeyer.

The systematic breathing in which the action is from above downwards, and not from below upwards, is carried out as follows:

A round, polished stick (p. 720) is grasped near the ends with each hand, the palm towards the body, the arms hanging loosely at each side, as in Fig. 353: still retaining the stick in the hands, both arms should be raised with a strong pressure (Fig. 354), whereby the chest diameter is increased longitudinally. From this position, by strongly flexing the elbow, change to the position as in Fig. 355, “neck position,” which additionally increases the chest capacity in the lateral diameter. During this position, that part of respiration is accomplished which is mostly neglected now-a-days, in consequence of the

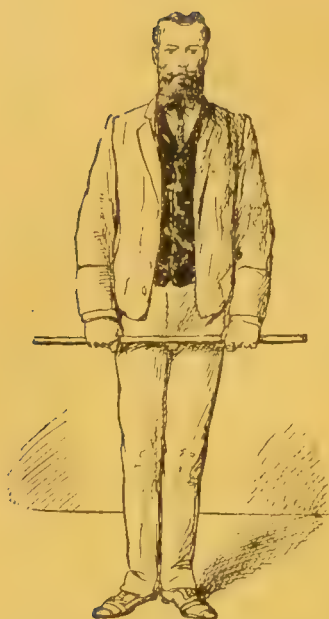


Fig. 353. Position 1, Breathing Exercise (downward).



Fig. 354. Position 2, Breathing Exercise (upward).

sad state of our work and labour conditions we have already spoken about. This is apex breathing, or rather breathing with the upper lobe of the lungs (Fig. 356 c), the word "apex" generally presenting to our minds a mere point or eminence. Inspiration and expiration, in the position just described, may take place by deeply and quietly breathing through the nostrils six, eight, or ten times consecutively, and doing this four or five times daily, but (in the same position) a much more effectual course can be taken, in the form of "Holding-the-breath," as follows:

In a pure atmosphere slowly and quietly take in as much air as possible; now retain it, in the expiratory position, so long until "you can wait no longer," and then



Fig. 355. Position 3, Breathing Exercise (nape).

quickly let it out. One should count to themselves the number of seconds they are able to retain the air, to form an idea, when repeating the exercise. Weak-chested people get to about ten seconds, whereas sound-chested people can retain the air sixty to seventy seconds; divers can retain it under water eighty to ninety seconds. Miss Lurline, the "Water Queen," even keeps her breath under water one hundred and eighty seconds = three minutes. The exercise of "holding-the-breath" can be practised six or eight times consecutively, and repeated three or four times daily. The physiological action of this "feast for the lungs" is three-fold:

Firstly, the chest cavity, in its capacity of outer case to the breathing organs, is enlarged; and all those organs of the chest which are in a dormant state, in consequence of one-sided work or the position of the body during one's daily employment (as in writing, which affects the right lung apex), are roused to activity. Secondly, the ventilation in the lung cells produces a state very similar to the one seen in well-aired rooms, when we open doors and windows for the admission of fresh air. Thirdly, the exercise of "holding-the-breath" has an exceedingly beneficial effect on the whole physiological working and on the organic processes of the body. The blood and nerve support, heat production and loss of surplus heat, the elimination (or throwing off) of waste matter, and the promotion of secretions, are all assisted by this exercise of breathing. Most people have unconsciously, when holding "heated discussion," practised "breathing exercise."

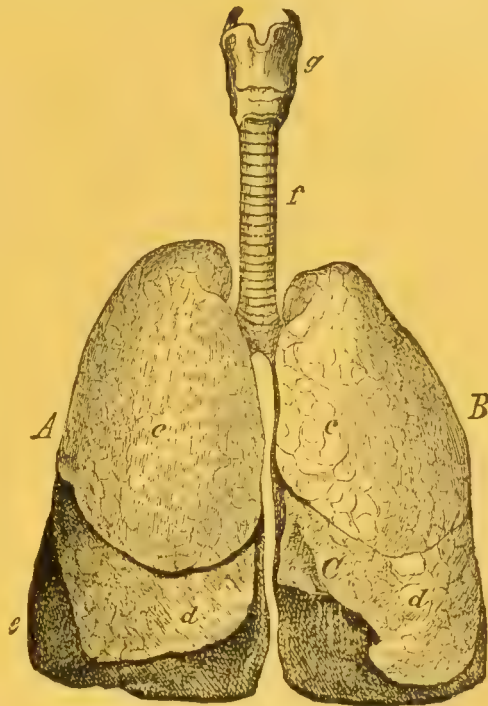


Fig. 356. The Lungs, Trachea and Thyroid Cartilage.

A. Right lung. B. Left lung. The right lung consists of three overlapping lobes (c, d and e), the left of only two lobes (c, d). C. Space for the heart. f. Trachea or windpipe. g. Thyroid cartilage.

After having used the stick during practice for some time, we may attempt to do without it, as shown in Fig. 357. The hands are held behind the head, not on the top. Those who are well practised in the breathing exercises may place the hands on the hips during holding-the-breath. (Hip-support position).

To assist in undertaking breathing exercise, we recommend the simple active movements of the Gymnastic



Fig. 357. Holding the Breath
(without a stick).

Treatment (Figs. 227 and 228), not forgetting the exercises with the arm and chest developer, "Largia-dère" (Figs. 222 and 223). Figs. 358 and 359 present to the reader impressively the difference, and what it means, to have sound or diseased lungs. Fig. 358 shows us a man at his best age, of strong build and muscular type, in fact, a "man according to nature." Fig. 359 exactly the reverse state, a weak-chested individual, who represents quite two-thirds of the cultured but physically degenerated present-day mankind. I trust the impression made by these two pictures will be

of benefit to my reader, and urge him to utilize every spare hour of the day in breathing exercise.

Breathing, Inspiration (Drawing-in the Air).

(See Index.)

Bread. (See Index.)

Breast, Cancer of the. (See "Women, Diseases of.")

Breasts, the Female, Care of. (See "Women, Diseases of.")

Breast, Hardening of. (See "Women, Diseases of.")

Breast, Massage of the. (See "Massage Breast.")

Breast, Shower Bath for the, according to Kneipp.
(See Index.)

Breast Nipple, Cracked, arises from external causes, pressure, fall, push. If the breast itself is not badly contused, it is not dangerous, the remedy being for the patient to remain in bed in a horizontal position, and have the breasts suitably bandaged. The treatment should be in the hands of a skilled surgeon.

Breasts, Sore. (See "Women, Diseases of.")

Breast, Tumour of. (See "Women, Diseases of.")



Fig. 358. Strongly-built Chest.

Bright's Disease. (See "Kidneys, Inflammation of the.")

Broken Leg. (See "Bones, Fracture of.")

Bronchial Tube, Cramp of the. (Bronchial Asthma.)
(See "Asthma.")

Bronchocele, Derbyshire Neck, is a diseased swelling of the thyroid gland, which is situated under the larynx, and in front of the bronchial tubes, extending towards either side. The swelling, which grows gradually, proceeds from a plastic exudation from the blood vessels and hypertrophy of the

thyroid gland. Bronchocele generally requires years for its complete development. In the initiatory stage the tumour is soft, elastic, and of irregular form. By further development it hardens, and by circumference and weight exercises pressure upon the bronchial tubes, the larynx, and the blood vessels of the neck, thereby causing difficulty of respiration and swallowing. Not infrequently the tumour causes fits of giddiness and suffocation, as well as hoarseness and roughness of voice.



Fig. 359. Weakly-built Chest.

Bronchocele is often endemic (peculiar to certain localities). When it appears singly, as, for example, in the case of young people, specially young girls during their development, it is a symptom of scrofula. (For further information concerning Bronchocele, in conjunction with Basedow's Disease, see Eye Diseases: Basedow's [or Grave's Disease].)

The treatment must be towards removal of the fundamental cause. The General Strengthening Treatment should be chosen, which operates by means of stimulating neck packs, together with stout, stimulating, double compresses, applied

to the tumour, as also steam compresses and neck massage, or a strong or modified abstinent treatment. (Refer to treatment of "Scrofula.")

Bruise.—A bruise is usually caused by outward violence, jamming, a fall or a blow, causing an accumulation of blood. The skin usually remains intact, the soft parts immediately under it, capillaries, and other small blood vessels being injured. The blood exuded usually undergoes a change, and this shows the bruise as a green, yellow, or blue mark.

Application should be made of anti-inflammatory, and, later, of stimulating bandages. The swelling should be massaged by means of soft centripetal strokes and mild kneading.

Bruises, Contusions.—By "bruise" one understands, in a limited sense of the word, an injury caused by a blunt instrument or body, not followed by a separation of the outer skin. The bruised tissue suffers not only from contact with the injuring body, but also from a disturbance in its normal constituents, which it displays in a separation of the most delicate muscular filaments, small blood vessels, nerves, and the cellular tissues of the bruised part of the body. A bruise arises either from a thrust, blow, fall, etc., or gradually through lacing tightly.

On the force of the injury depends the state of the bruised part. The injury dies away, giving place to inflammation in the surrounding tissue. The worst type of bruise is a pinch, or compression.

Treatment consists in an anti-inflammatory course (p. 512). The requisite massage is also employed, as described under "Rubbing."

Bubo. (See "Chancre.")

Bunions. (See "Corns.")

Burgundy-Nose. (See "Acne.")

Burns, Wounds caused by Burning.—When a strong heat, in the form of fire, flames, smelted or glowing metals, etc., comes in contact with the organic tissue, burns are caused. But if the organic tissue is damaged by hot water or vapour, scalds are caused. Sharp, chemical substances (such as acids, or salts, etc.) also cause burns where they come in contact with the organic tissue.

The three kinds of burning produce almost the same effect. When there is a lesser degree of heat, inflammation is caused, but a greater degree of heat leads more or less to the destruction of the tissues affected. At every kind of burn the

pain is intense, the redness of the skin is great, but the swelling is not in proportion to the symptoms mentioned. Fever generally only sets in after deep, serious burns have been received, and also after slight burns if they cover the whole body. Burns may be divided into three grades, according to the intensity of the heat by which they were caused and the extensiveness of the damaged skin, therefore a burn is said to be of the first, second, or third grade. The burns of the third grade are the most dangerous, as they go deeply into the body; as a rule they destroy the tissue, and are covered very soon with a black carbon-like matter (charring, or carbonisation). The burns of the second grade are less dangerous, as blisters only are formed. The burns of the first grade are not at all dangerous (when they are on a small scale), as they pass away after a time of inflammation and painful redness of the skin. The three kinds of burning are represented on Fig. 360. Burns of the third grade are absolutely deadly, even when they only cover a third part of the surface of the body; burns of the second grade are deadly when they include two-thirds of the body's

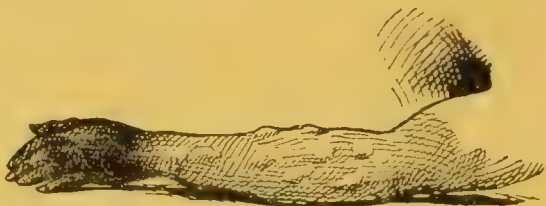


Fig. 360. An Arm covered with Burns.

surface. With burns of the first grade, death can only take place when more than two-thirds of the body is covered by the burns.

After very extensive burns, which really place the patient's life in danger, the patients are generally very quiet, feeling little pain; they occasionally sigh very deeply, and only ask for a drink of water. This means that the end is approaching, and death ensues in consequence of the action of the skin being thrown out of order. The patient suffocates.

The treatment is according to the degree of the burn. Burns of the first grade should be treated as follows: When the skin is not damaged, cooling compresses of 77° to 81° F. should be applied. When the skin is damaged, compresses of 81° to 86° F. should be used, as water of a low temperature — under 81° F. — may be dangerous or painful in this case. The cooling compress should be composed of several layers of cloth, but before it is applied to the burn, a well-moistened thin layer of soft linen should be first applied (this thin layer is never taken off, when the compress is taken off to be

moistened again), so that the burnt part may be secure against air, dust, etc. Or, where it is possible, the burnt part may remain for hours under water of from 81° to 86° F. When the water grows cooler than about 81° F., some should be drawn off, and more, of 81° to 86° F., added. When the pain grows less, one can gradually use water of a lower temperature, up to 72° F., and even below that.

Water of a temperature of from 54° to 66° F. is also used for burns, but only when the wounds begin to fester, or when a kind of proud flesh (fungous flesh) appears. A few popular medicaments will now be mentioned, each one being useful. Olive oil, linseed oil, castor oil, fat, lard, dripping, unsalted butter, white-of-egg, crushed raw potatoes, etc. (Comp. the article on "Fat.") A capital ointment to lessen pain and help in the cure of burns is made of unsalted butter and eggs. An egg is placed in a cup, a tablespoonful of the butter added, and the two well stirred. The ointment thus obtained is placed on clean soft linen, and the burnt parts of the body covered completely with the linen, the ointment being renewed as often as it gets dry. Even burns which occupy a large part of the skin's surface can be treated thus, only one has to put the ointment on a large piece of linen. In some cases the following articles are of great service when they are sprinkled on the burnt parts, namely, flour, powdered rice and powdered charcoal. When these have been sprinkled on the burn, it should have some clean, loose wadding placed on it (the shiny covering must be taken off the wadding first). All these means are efficacious, as they prevent the air from getting to the burn, and lessen the pain in consequence.

With burns of a second grade, it is best to keep the blisters, as they form the best covering for the exposed skin, which is very painful when it is touched by the air. One should therefore never tear off a blister, although it may be useful in some cases to prick the blister with a pin, so that the watery matter may run out. The above means for the cure of burns may be applied to burns of the second grade, as well as to those of the first grade. One should therefore use cooling compresses and oily and fatty substances.

The third grade of burn, and the festering burn, demand the use of the treatment given in the article entitled "Wounds." For very extensive burns the so-called bath bed should be used. This is usually a long, large bath, which is thus made in order to hold a frame, to which strong straps are fixed

(for the patient to lie on). After the patient has been placed on this frame, he is let down into the bath, with the help of a contrivance made of cords and handles.

The patient may remain for days in this bath, which should be graduated to the required temperature. (See p. 515.)

In a case where burns have been caused through acids (such as sulphuric acid, nitric acid, etc.), it is best to sponge the burnt parts of the body thoroughly with fresh cold water, and then to apply soft soap to the burns. Or place a compress on the burns which has been soaked in lime water, or one may also sprinkle the burns with carbonate of soda.

The burning sensation which was caused by the lime requires that the affected parts should be first washed with cold water, and afterwards with diluted sulphuric acid, or with a mixture of vinegar and water. Upon this one should apply compresses saturated with oil.

In a case where lime has got into the eye, one should follow the directions given in the article on "Eyes." Refer to the part which contains instructions how to proceed when a foreign body is in the eye.

Before I conclude, I might give a few details how to proceed when one is in the presence of a person whose clothes have caught fire. A person in flames has generally lost his presence of mind, and tries to run away, so the first thing should be to prevent this, as the draught of air increases the flames. At the same time, one should not run away to fetch water, but seize anything in the way of cloth that is handy (such as a table-cover, sofa-cover, etc.), or if there is nothing better, quickly take off your coat and wrap it round the burning person. Then throw him on the floor, and endeavour to suffocate the flames by rolling him about. When this is accomplished, fetch cold water, and pour plenty over the person, as a part of the burnt clothes may still be hot, and may cause a burning sensation on the skin. Then carry the person carefully into a warm room, and place him on the floor or on the table, which is better than putting him in bed, for one can get at him more easily. The burnt clothes are to be cut off with a sharp knife or a pair of scissors, which must be accomplished very carefully, so that the clothes come off quite easily, for if there is any pulling or tearing, it may cause the unfortunate person great pain. Any part of the burnt clothes which will not come off quite easily, and which sticks to the skin, should be left

there, so that one really needs a pair of scissors in this case, to cut carefully round any portion which firmly sticks on the skin. If the patient feels thirsty, it is best to give him warm, stimulating beverages (tea, coffee, etc.), because the temperature of the body falls below the normal heat just after fairly severe burns are received. Never fail to call a doctor in cases of severe burns.

Taking into consideration how many people fall victims to fire, I will make a few remarks as to how a fire may be caused, and how one may be prevented. Next in rank to the burning of theatres, which claims so many victims, come the fatal and other cases of burns caused by gas explosions and petroleum accidents. It is a fact that most gas explosions are caused through carelessness, that is to say, by leaving the gas taps turned on, so that there is an escape of gas; and most fires that are caused through petroleum accidents take place either because people thoughtlessly throw petroleum on the fire to make it burn up, or because they are careless when they handle a petroleum lamp. Petroleum lamps should not be filled when darkness has set in, while a candle is burning, and servants should not be allowed to light the fire by the addition of petroleum. Kid gloves or clothes should never be cleaned with benzine in the evening, while a light is burning. Stuffs, such as tulle, gauze, etc., that very easily catch fire, and that are much used for ball dresses and curtains, should be made incombustible before they are used. In order to do this, the stuffs must be dipped in a solution of ammonia, they should then be dried, and ironed or pressed. This is an inexpensive, simple way, and it will be noticed that the colours are not in the least affected. When stuff which has been impregnated in this manner comes in contact with a flame, it does not quickly blaze up, but chars slowly, like tinder.

Scalding of young children can generally be put to the account of thoughtless mothers or nurses, who occasionally put down vessels containing boiling milk or soup in a careless manner, so that they are easily and unexpectedly overturned by the little ones. How often does one not read in newspapers that children were burnt after they had been allowed to play with matches.

May everyone regard it as his duty earnestly to exhort others to be careful whenever he notices signs of carelessness in them.

C.

Cancer.—Cancer is a very serious and painful, new formation, which takes the form of sores, and quickly absorbs the sufferer's strength. Any of the various parts of the body may be affected by cancer. But whatever organ it affects, it is always through a dyscrasia, causing a general affliction, and requires, particularly in view of a cure, a new formation and secretion of the juices. (Refer further to "Bladder, Breast, Intestine, Larynx, Liver, Mouth, Stomach, Tongue, Womb," ["Cancer of"].)

Cancer of the Cheeks. (See "Mouth, Inflammation [Gangrenous] of the.")

Cancer of the Rectum. (See "Intestine, Cancer of the.")

Carbolic Acid Poisoning. (See "Poisoning.")

Carbo-Hydrate.—Carbo-hydrates are so called from the fact that, besides carbon, they contain hydrogen and oxygen in the same proportions as water, viz., two parts of hydrogen to one of oxygen. Whereas albumens (see this heading) contain nitrogen, the carbo-hydrates are non-nitrogenous. The most important carbo-hydrates are starch, or farina, contained in most plants, and in larger quantity in cereals, particularly wheat, also in rice (rice starch), in potatoes (potato starch), in sago, etc. Also sugar (cane, milk, grape, etc.). Carbo-hydrates are also found in gum, vegetable mucus, and the cellular substance of plants.

Carbonic Acid Poisoning. (See Treatment of "Suffocation.")

Carbuncle. (See "Abscess," "Boils.")

Caries. (See "Teeth, Disorders of.")

Cataract, Black. (See "Eye Diseases.")

Cataract, Green. (See "Eye Diseases.")

Cataract, Grey. (See "Eye Diseases.")

Catalepsy, Trance, apparent Death. (See also "Hypnotism.")—This is a state of the human organisation when all tangible signs of life are extinct. The person lies cold and motionless as a corpse. The fear lest, in this state, he may be buried alive, torments the existence of many a man, and is the cause of many testamentary instructions regarding the disposal of his remains (cutting the main artery, cremation, dissection, etc.). Similarly the relatives of a dead person, whose appearance is but little changed after death,

suffer awful dread lest the condition is not actually death, but catalepsy. The anxiety of such persons may be set at rest by knowing that, in cases of deficient trust in the doctor's word, a remedy is at their service by which they can assure themselves whether death has ensued or not. According to an article in the "Revue Scientifique," the French authority, Dr. Bourneville, as the result of many years' investigation, gives the following opinion: That after death the internal temperature of a human body, after a certain number of hours, falls considerably below that of the surrounding atmosphere. After three or four hours, a real or apparent corpse becomes of the same temperature as the air; in six to eight hours the internal temperature sinks to about 18° to 21° F. below that of the outer air. This phenomenon has been tested in a thousand ways, and gives the survivors a means of proving a dissolution beyond any doubt. A fever thermometer, introduced between the jaws into the gullet one-and-a-half to two inches down, records the internal temperature of the body six to eight hours after the change. If it is taken out after a quarter-of-an-hour, and shows a marking of 18° to 21° F. lower than that of the air of the room, it is a proof that death has actually occurred. But in many cases, unfortunately, it would be impossible to separate the jaws, and the following signs may also be relied on. Unless death has actually taken place, the cornea does not relax, and a gentle pressure by the finger does not leave a dint, nor does rigidity ensue, nor the flattening of the parts on which the body rests, the back and the seat. Nor is the peculiar odour apparent, nor the death spots. But the surest sign that a person is really dead, and not only apparently so, is the decay, or decomposition.

Catarrh.—By catarrh is understood every affection of the mucous membrane of the body brought on by any injurious action, going hand in hand with increasing mucous secretion and general derangement of the system, so that one speaks of eye, nose, jaw, throat, bronchial, stomach, bowel, bladder, urethra, womb or diaphragm catarrh. For further reference on separate form of catarrh, see under each disease.

Catarrh, Cold in the Head, Inflammation of the Mucous Membrane of the Nose.—The catarrhal affection of the membrane lining the blood vessels, veins, tissue and glands surrounding the nasal cavity, is called a cold in the head. There are acute and chronic forms. Many people have a

great tendency to this disorder. These are generally scrofulous, anæmic and pale people, who also suffer from chronic cold feet. The causes are various. Chills, especially in spring and autumn, often cause catarrh. It often follows drug poisoning, such as taking iodide of potassium, and sometimes assumes the form of hay fever, which is brought on by the action of the large quantities of pollen pervading the air from May to July. Nasal catarrh is also a symptom in many feverish and chronic disorders; often a critical one during the Natural System of Treatment; often the result of physical effects which go with congestions of the head; and finally, it is often a consequence of disturbance in the sexual organs, especially female, in which the nose acts as proxy for a sexual organ which is obstructed or oppressed.

The severest form occurs in influenza. The symptoms of an acute attack are shivering, slight fever, loss of appetite, increased thirst, constipation, stuffiness in the head, frontal headache, general lassitude, etc. (suppressed catarrh); a feeling of straining, dryness, ticklishness and stinging in the nose, frequent sneezing, water from the eyes, a dislike of light, increased mucus in the nose (of an irritant kind, which inflames the region of the nose), decrease or loss of the sense of smell, sometimes cough, hoarseness, difficulty in swallowing, earache, etc. The catarrh lasts a few days only, but if neglected it may go on for a fortnight. Chronic catarrh may either come on suddenly or gradually. It is a premonitory symptom of scrofula with children. Its favourite place is just under the nostrils, which are permanently affected. The nostrils being obstructed by scabs, breathing is carried on through the mouth. The bad habit many children have of thrusting things into the nostrils, such as peas, beans, beads, cherry stones, pieces of paper, etc., and which are hidden there for months before their presence is suspected, is accountable not only for chronic catarrh, but for offensive discharge. Syphilis also carries chronic catarrh in its train. As in chronic catarrh of the mucous membrane of the throat and passages, so in nasal catarrh there is a distinction between swelling and wasting forms, called hypertrophic and atrophic. The former is characterised by a puffing up and swelling of the nasal membrane. There is very little mucus. Owing to the contracted passage through the nose, and the obstruction by dried secretions, breathing through the mouth goes on. If the secretions are fixed in the upper part of the

nasal cavity, it may turn to ozema. Nasal polypi are often the result of the unhealthy changes in the membrane. Swellings of a scrofulous or syphilitic nature are not unfrequently met with. In the atrophic form of nasal catarrh there is a wasting of the membrane and continual dryness. Nasal catarrh is, in any form, a very obstinate trouble, and requires much time and patience in its treatment.

The treatment of acute catarrh is the same as "Influenza." (See "Influenza.")

Chronic catarrh must be traced to its source, that it may be suitably dealt with. In doubtful cases follow the "General Strengthening Treatment." The main accessories are: Air and sun baths, bed vapour baths, full baths, and specially, with the object of reducing congestion, walking barefoot, walking in water, paddling, foot vapour baths, bathing the soles of the feet, nightly stimulant packs on the neck, body and calves; soothing massage, a course of No. 3 "Simple Active Movements of Curative Gymnastics." Local treatment consists in frequent nasal injections, 86° to 90° F. (in scrofulous cases and ozena, 91 to 95° F.); and in vapour baths for the head, in which the nostrils are continually expanded to inhale the vapour. Possible swellings in the nostrils require also the application of pads of wadding, previously soaked in water, 73° to 77° F. These pads should be renewed every three hours. Avoid clinical treatment, the cauterising of swellings or of polypi by galvano-caustic means.

Catarrh of the Air Passages. (See "Bronchitis.")

Catarrh, Bronchial.—There are two forms of tracheal and bronchial catarrh, an acute and a chronic. According to the quantity and quality of inflammatory secretion, a dry or a wet (dropsical, slimy, festering) catarrh is spoken of. Should it be a self-standing disease, it is termed Primary; if, on the contrary, it is the effect of a complicated or abnormal condition of the organism, the term applied to it is Secondary. When the disease affects both of the lungs in its bronchial ramifications, diffuse bronchitis, or diffused inflammation of the bronchial tubes, is spoken of; while, when it is confined to one wing only, or to one part of its ramification, circumscribed (sharp, limited, confined) bronchitis is the name given to it. When the large, wide bronchials in the vicinity of the trachea are inflamed, it is called tracheal bronchitis; but when the affection seizes the finest

and minutest of the bronchial ramifications, it is termed capillary bronchitis.

Bronchial catarrh only attacks those people who are naturally predisposed to it, the greatest contingent of whom are weak, debilitated, ill-fed, puffed-out, poor-blooded, badly constituted individuals. The propagating force of primary catarrh is for the most part to be met with in colds of different forms and species, trade injuries in the way of forced continual inspiration of dust, poisonous gases and vapours (p. 1429); inspiration of flower dust (pollen) in summer time (hay fever); of tobacco, during protracted presence in smoke-permeated rooms (as in hotels, restaurants, etc.); poisoning through use of medicines containing poison, as iodide of potassium, quicksilver, etc.; over-exertion of the organs of breathing (p. 1426), etc.

The secondary species of catarrh is usually brought on by diseases of the lungs and heart; catarrhal affections of the mucous membrane of the nose, jaws, and larynx; feverish infections, as well as constitutional disease.

Acute catarrh of the fine bronchial tubules (acute tracheal bronchitis) is diagnosed by chills and cold shivering, slight fever, painful feeling under the breast-bone, tickling feeling in the throat, coughing, loss of appetite, pains in the forehead, general debility, etc. Expectoration is either altogether wanting, or, if present, is, at first, tough, then limpid and mattery. In some cases vomiting, pains in the side, sometimes also bleeding of the nose, accompanies the aforementioned signs. The course of this kind of acute catarrh is generally a favourable one, convalescence taking place in from eight to fourteen days.

Acute catarrh of the fine peripheral bronchial tube ramifications (acute capillary bronchitis) is developed either from tracheal bronchitis, or it appears from the first as a primary affection.

The complex symptoms are as follows: Fever of different grades, increased heart action, dryness in the mouth, loss of appetite, intense thirst, constipation, troublesome cough, breathlessness, etc. Should the lungs be drawn into sympathy with the affected circle, percussion over the affected parts shows dulness, and when breathing becomes very difficult, death may ensue from suffocation. In the most favourable cases of acute bronchial catarrh, its duration is not longer than from one-and-a-half to two weeks.

Chronic bronchial catarrh is the result of a neglected or mismanaged acute form, or it may appear as a primary disease. The causes are similar to those of acute catarrh. Chronic bronchial catarrh is divided into a dry and a moist form. The former is characterised by the following symptoms: Convulsive panting, fits of coughing, causing the face to change to a dark reddish blue colour, the eyes to water and look prominent, the nose to "run," and intense pains to course across the breast. The great difficulty of breathing compels the sufferer to pass day and night in a sitting posture. In long-standing cases the circulation is generally disturbed, the right valve of the heart enlarged, and a general condition of œdematous swelling is established (dropsical).

In the moist form, a feeling of pressure is present in the chest, and an irritation tending to coughing on awakening in the morning. After more or less spasmodic coughing, a proportional quantity of tough phlegm, mostly in lumps, is ejected. This collection generally dates from the previous night. Expectoration is also frequently continued during the day, when its consistency becomes tough, glassy, and sometimes mattery. There is, besides, another distinct form of chronic moist catarrh in which the inflammatory ejections are transposed into putrid decompositions. The phlegm has then a dirty yellowish colour, is of limpid consistency, and is of such an evil odour, that the patient himself and his attendants can scarcely endure it. In the course of chronic catarrh, the bronchial tube ramifications become enlarged, or enlargement of the lung vesicles (emphysema) is developed. Chronic bronchial catarrh is a stubborn affection continued year after year, with ever-renewing vigour of its causative force, and lasting as long as life itself.

The treatment must have in view the removal of the causative influence or fundamental disease. The active, primary bronchial catarrh requires the treatment prescribed for fever in Part II., Section 6. Bed vapour baths are specially effective when applied once daily, No. 4 for small children, No. 3 for older ones and adults. Quite small children should receive a so-called children's vapour bath. (Refer to this.) After the vapour application, a cooling-down process must follow, a half-bath at 83.75° to 88.25° F., together with simultaneous energetic affusions of the chest; or a trunk bath at 81.5° to 86° F., or complete washing or wet friction at 77° to 81.5° F. Every second day further water application of

stimulating trunk packs at 77° to 81.5° F., in from two to three hours, or stimulating Scotch bandages at 72° to 77° F., changing every three or four hours with stimulating calf packs at 68° to 72° F. Cold feet require hot water bottles encased in moist cloths, placed beside them. For breathlessness and imminent suffocation (in the case of adults), the treatment given on p. 783 for "Asthma" should be used. The treatment of children should also be the same as that given on p. 784. For the loosening of the phlegm and clearing of air-passages, steam compresses from four to six rounds, changing every ten minutes, should be placed upon the breast. In threatened suffocation, half-baths at 83.75° to 88.26° F., together with uninterrupted simultaneous affusions of the breast and back at 72.5° to 77° F., should be carried out until breathing is again restored. In the case of adults, frequent gargling with water, at 62.5° to 68° F., is also recommended. Constipation must be avoided by giving through the day several enemas at 72.5° to 77° F., together with subsequent small cold ones, at 62.5° to 68° F. The diet must be simple, sloppy, plain and cool.

The treatment of chronic bronchial catarrh, in either its dry or moist forms, is, with carefully carried out addition of the above-given acute catarrh prescription, the same as that prescribed for "Asthma" on p. 783. The diet should be composed chiefly of solids. Nightly application of stimulating Scotch bandages, together with stimulating calf packs, should be made. Other important curative factors are massage of the back and breast, breathing exercises, barefoot walking, air, light and sun baths, etc. (Refer more closely here, to the "General Strengthening Treatment.") It is often necessary to direct the treatment to the fundamental cause.

Catarrh, Laryngeal. (See "Croup.")

Catarrh of the Tear Glands. (See "Eye, Diseases of.")

Cells.—The vegetable, animal and human organisations do not only consist of similar components, and the same limited number of chemical elements (p. 243), but they consist of the same formations and rest on the same basis. This base is called—owing to the likeness of a tiny vegetable section, as seen under a microscope, to a vertical section of a honeycomb with its numerous dependent cells—a cell. A cell is a fluid or soft compact corpuscle of albuminous character, containing another round, solid body, called a cell germ, and often a third, called a nucleus. From the germ all life

issues. (Fig. 361a). If it dies, the cell does the same, and its existence depends upon the presence of the germ. It propagates the cells. The propagation consists in division of the cells. There is a simple and indigenous division. In the first, an existing cell divides into several young cells; in the second case, young cells form inside the mother cell, and in due time the original cell dwindles away. In consequence of their being so closely packed, they lose some of their roundness (Fig. 361c), and this in proportion to their function. Some stretch in length, and growing one within another, become fibres, of which the muscles are made. Others assume shapes as shown in Fig. 362b; they are the chief component of the bones. Others throw out numerous fine networks — these are the nerve cells (Figs. 393 and 394c). Others form tiny tubes, covered with the finest hair (Fig. 362d). Others are little plates, covering the membranes. Others, again, swim in the blood in their pristine form (Fig. 312). These varied forms are connected with one another in the most varied ways by the intermediate cell tissue, and constitute, in innumerable masses, the whole of the human corporeal substance, bones, muscles, nerves, the skin, the brain, the spinal cord, and the sinews. The cells of which the human body is composed are alive, that is, they contain assimilation products. Between the cells

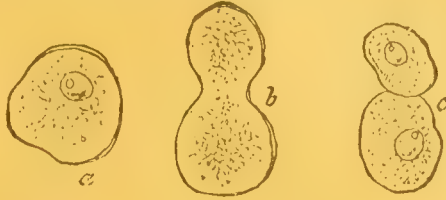


Fig. 361. The Division (endogenous) of Cells.

a. Original cell with the cell germ. b. Two cells during development. c. Two new cells.



Fig. 362. Various-shaped Cells.

a. Lengthened muscular cells, fibrous. b. A bone cell. c. A brain nerve cell. d. Filament cell. e. A cell from a membrane surface.

there are little fissures communicating with one another. In these widespread nets of tiny canals alimentary fluids circulate, exuding from the smallest veins and saturating the cells. The cells absorb such nourishment as they need for their own existence, development and functions, and throw off, in exchange, used-up matter. (See "Blood, Human.") But they work mostly in producing life. The used-up, worn-out cells are replaced by new ones, formed as already described. Every cell leads an isolated life, though united with a countless number. But it has to co-operate with a million others that form a certain substance, whether of bone, muscle or nerve, to perform similar work and feed itself in the same way. All sorts of cells form a cell mass, and however great their differences they carry out their work in common, being dependent on each other.

Chancre.—There is a difference between hard and soft chancre. Both forms appear as swellings brought about by infection through intercourse with an affected person, and situated in the sexual parts. But while hard chancre, one of the primary symptoms of syphilis, permeates the whole body with its poison, in soft chancre this is very rare, as it is strictly local, but occurs when the hard chancre appears simultaneously with the soft. We will, in this article, confine our attention to soft chancre (*ulcus molle*), and dilate upon the other form under the heading "Syphilis." The only way of incurring soft chancre is by sexual contagion. A very slight wound on either person is sufficient to admit infection; the real nature of the poison is as yet unknown.* It is contained in the pus, and is extremely contagious. The incubation lasts about thirty to thirty-six hours. The infected spot becomes red, and, after awful itchings, in about forty-eight hours a red spot appears, which grows into a head in the third day; this, on the fourth, becomes a little blister, with clear matter. It bursts, and then festers. If any part of the skin around is broken, it will not heal, but is filled with a foul secretion. The abscess that has now formed spreads downwards or around, according to the degree of mischief in the tissue, and its size varies from that of a pin's head to a bean, and is generally round. It penetrates downward, drawing in the edges a little.

* While allopathists maintain it is of a distinct bacterial character, the Natural System insists that it is one of the group of ptomaine poisons created by the fermentation of albuminous bodies.

But in a few days it increases in size, and looks as if it had been hammered out. The edges, swollen, raised, either stiff and deep like a crater, or serrated, surround a dull-grey speckled interior, discharging thin acrid pus. When the abscess is cleared out, or shows signs of healing, after ten or fourteen days, or it may be months, this interior disappears, the discharge is less angry, and stops altogether at last, and the abscess is replaced by granulations (red, sappy tissue), until the wound is perfectly well. There is no pain, but tingling and itching are felt. But it is not generally confined to one swelling. As a rule there are several at a time, which unite and become one large abscess. The position is in the private parts, both of men and women. The duration of the disease averages four to six weeks, but in slight cases the abscess is clear in about three. There are again two kinds, the mild and the angry. The last is represented by the gangrenous and the sloughing chancre, which also may be the outcome of the milder sort, if improperly treated or neglected; or it sometimes assumes the angry form from the first, in underfed scrofulous persons. Corroding chancre discharges a fluid that is extremely offensive, has a greyish, greenish core, sunken edges, and a fiery head. It extends around further and further, till the entire parts are diseased. While the mortification is going on the sore becomes livid, and is covered with black scabs. The foreskin is dark blue or black, and the skin round is red or purple, and dropsical in appearance. Corroding chancre is distinguished by rapid corruption of the skin, sometimes laying bare some of the muscles of the abdomen.

A result of soft chancre is inflammation of the glands (bubo), brought on by violent physical exertion or cauterization. The inflammation attacks one or both glands in the groin, and shows a tendency to suppuration. The inflammation may come on after the chancre, at the same time, or even after it has healed. The glandular swelling is accompanied by shivering, high fever, vomiting, constipation, and violent pains all round. The skin over the glands swells, generally looking dropsical and inflamed. It becomes thinner and thinner, until the swelling bursts in the third week, and thick pus, mingled with blood, is discharged. A resorption of the swelling is rare, and only in mild cases. The cure takes weeks and months, and a scar is always left. This is the case when the abscess has been surgically opened. In many

instances the swelling becomes chancreous, and in this case the discharge is poisonous and infectious. Sometimes we also find accumulation of matter under the skin, which may lead to an inflammatory affection of the blood vessels, the upper leg, and, eventually, may cause pyæmia.

The treatment of a soft chancre consists in the following measures: Take with perfectly clean hands a thin piece of chemically cleansed wadding, wring it out in water at 73° to 77° F., that has been previously boiled, but has now cooled to this temperature, and lay it on the swelling.* Over this put a fine linen bandage (doubled once is sufficient in the day, but at night it should be four-fold), or aseptic lint, and wrap it all in clean flannel. This bandage may be changed four or six times a day, as well as the wadding, but the linen and flannel only when they are wet through. If the wadding sticks to the wound, do not tear it off roughly, but wet it thoroughly with water (82° to 86° F.), to loosen it. Then draw it gently away. At every change of the bandages wash the wound carefully with lint, soaked in boiled water cooled down. To prevent any shifting of the bandages, put a dry cross-shaped pack over them all. To these measures may also be added the taking of two or three hip baths every day, tepid (90° to 92° F.), and the duration twenty to forty minutes. While bathing, remove the bandages so that the water may act upon the wound. To obviate constipation, use enemata (73° to 77° F.). To prevent inflammation of the inguinal glands, cover them at night, if possible, with a stimulating cross-shaped pack (73° to 77° F.), and thick stimulating compresses at 68° to 73° F. These water applications will generally suffice, though tepid baths, or bed vapour baths (No. 2 or 3), taken twice or three times a week, are helpful. The diet should be mild, non-stimulating, and mainly vegetarian. Coffee, tea, and alcoholic beverages are to be avoided. Bodily exertion must be as limited as possible. Inflamed or suppurating chancre requires the same treatment, together

* All water used in the treatment of abscesses must be boiled before using. By long boiling, all organic admixtures lose their power—the water becomes free from germs. This purified water not only ensures perfect cleanliness in the wound, but prevents inflammation. This cannot be avoided in the use of a mild greasy ointment, as the component parts, on mixing with the discharge, speedily decompose and irritate the wound. This applies in the treatment of all abscesses.

with the instructions given under "Blood Poisoning" and "Mortification."

Inflammation of the inguinal glands requires, firstly, dispersion of inflammation, and that the swelling should open by the application of vapour compresses several times a day. Apply four or six compresses in succession, leaving each about eight to ten minutes on the swelling. After each course take a sitz bath (88° to 90° F.). After the swelling has burst, and there is consequently a discharge, apply the bandages described above, as well as the measures for changing them and cleansing the wound. The patient must keep his bed.

Change of Life in Women. (See "Women, Diseases of.")

Chapped Skin.—As is well known, the glands of the skin produce a fatty substance, which keeps the skin soft and supple. Should this supply become too small or cease altogether, or the fatty substance be abstracted from the skin by outward influences, the skin becomes dry and hard. Then at times we see cracks and clefts in the skin, either dry, or wet and mattery. These places are mostly found on the surface of the hands, foot-soles, lips, organs of generation, back passage, etc. The cause of these "chaps" is partly due to various ailments of the skin by external influences, as frost, over-exertion, foods or drinks containing too much potash, not drying the skin properly after washing in the winter, etc. Also in very old age, when the glands cease to secrete a sufficient quantity of fatty matter.

The treatment, where due to bad external influences, is by removing these causes. The cracks and clefts are treated locally, by applying pure wool fat (lanolin), spread on a piece of soft linen, after cleansing the places with lukewarm water. Applications of olive or almond oil, vaseline or cold-cream, are recommended. Local or whole vapour baths, followed by applications of fatty substances (as named above), are beneficial. Chilblains require for curative treatment ice-cold baths or rubbing with snow. In diseases of the skin (syphilis, scrofula, etc.) apply the treatment recommended under the various headings.

Chest, Oppression of the.—Oppression of the chest, in so far as it is not a symptom of asthma (see p. 781), is a feeling in which the thorax (cavity of the chest) feels as if it were too small and too narrow for the organs which it contains. The taking of a deep breath is, in this condition,

impossible. Strong emotional excitements, flatulent troubles, diseases of the lungs and diseases of the heart, new growths in the abdomen, pregnancy, extravasations and effusions or discharges in the breast cavity and the thorax, peritoneum, and many other causes, bring about the trouble in question. Oppression of the chest which, in cases of sickness, usually precedes the act of vomiting, is very typical.

The treatment must be directed, in the first place, to the removal of the primary trouble. For the rest one should apply the rules of treatment given under the headings "Breathing, Difficulty of," "Respiration." The means of palliating, or giving partial relief during the attack of compression of the chest, consist in the same applications as are described under the heading "Asthma."

Chickenpox. (See "Smallpox.")

Chilblains. (See "Chapped-Skin.")

Chilblains. (See "Frost Bites.")

Child-Bed Fever. (See "Lying-in Diseases.")

Child-Bed Illnesses. (See "Lying-in Diseases.")

Children, Cholera in. (See "Cholera nostras, Diarrhœa.")

Children, Convulsions in. (See "Cramp of Children.")

Children, Cramp of. (See "Cramp of Children.")

Children, Cramp of the Chest in. (See "Asthma.")

Children's Paralysis.—Inflammation of the grey anterior horns of the spinal cord in children is a complaint that seizes children between the ages of one and five years. The causes are unknown. It generally comes on suddenly, without any warning, with fever, 106° to 107·5° F. Other symptoms are convulsions in the face as well as in the arms and legs, rolling up the eyes; stupor, developing into perfect unconsciousness. These symptoms may appear by day or by night, and may last for hours, for days, even two weeks, varied by painless intervals. Paralysis of the muscles, which, in the beginning, may extend to all the limbs, or be confined to one, and very seldom touch the body during the further progress of the disease, recurring after days and weeks, and attacking one part only, which then remains crippled, is a striking symptom. Although the child's health improves, the parts affected become extremely attenuated, and this goes on till he looks like a skeleton. The reflex sensation of skin and nerves, in an extended paralytic seizure, is entirely lost.

The joints of the affected limbs are generally so limp, that they can be quite distorted, and placed in all sorts of positions. Finally, changes in the limbs and bones occur, generally in the shoulder, knee and hip joints, as well as the back-bone; the feet are also frequently deformed. The only chance of recovery is at an early stage, and that but seldom; in the second and third stages there is no hope at all. The first symptoms are sometimes overlooked, or ignored, especially if they occur at night, and are not connected with the ensuing symptoms. It is difficult for such children to learn to walk, they generally use only one arm or leg, a symptom the parents are at a loss to account for.

In the first stage, when fever is present, the treatment is that laid down for "Fevers," II. Part VI. Give the child three times a day a body bath (81° to 86° F.), or a half-bath (84° to 88° F.), the latter combined with vigorous affusions to the back with water (72° to 77° F.). In the intervals apply packs to the body and calves (72° to 77° F.), together with one for the back-bone (72° to 77° F.). When these are changed, wash the parts that have been covered in water at 72° F. Do not omit to apply enemas, 72° to 77° F., followed by small cold ones at 63° to 68° F. Apply cooling packs to the head of short duration. In the paralytic stage, which may be averted in some cases by careful observance of the foregoing instructions, the rules of the General Strengthening Treatment may be followed. Wash the child daily in water at 77° to 81° F., dry it by gently dabbing it, and give it daily a half-bath at 84° to 90° F.

The paralysed limb, that looks red or mottled, and is cool to the touch, should be packed many times a day and during the night, the water to be 68° to 72° F., but it should be first warmed by rubbing gently with a warm flannel, or applying a vapour bath to it. At night, stimulant packs should be applied to the spine and body (72° to 77° F.), and to the calves (77° to 81° F.). Massage and curative gymnastics are of great value, but should only be adopted after consultation with an expert. The diet should be plain and digestible.

I must utter an emphatic caution against the use of walking appliances, cutting the tendons, so much in vogue; taking iodide of potassium, strychnine, or the cold water treatment. See also "Spinal Cord, Diseases of the."

Children, Steam Bath for. (See "Bath, Steam for Children.")

Chlorosis, Green Sickness, is a morbid condition very common among young girls in their years of development. The trouble is consequent on a degeneration of the blood caused by some failure in the process of nutrition, which, in turn, results from injurious influences and unhealthy habits of life of all kinds, among which the most common are faulty education, neglect of bodily development, prolonged stay in bad air, mental over-exertion, emotional excitements, want of or insufficient physical exercise, want of rest and time to sleep, improper feeding, the use of corsets, constipation of long standing, a premature commencement of menstruation, excessive menstruation, self-abuse, and so forth. The condition is characterised by a peculiar livid, and sometimes greenish, wax-like paleness of the skin, which arises not only from an insufficient number of red corpuscles in the blood, but also from the fact that every individual red blood corpuscle contains less colouring matter than is present under normal conditions. This disease generally affects girls between the ages of sixteen and twenty-five, and blondes more often than brunettes. It may arise either quite suddenly or gradually, the girl, in the latter case, losing, little by little, her bodily and mental freshness, becoming dull, lazy, sad, depressed, inclined to cry, fanciful, sleepy, and generally uncomfortable, and void of interest and pleasure in anything. She loses her appetite, becomes thin, and muscularly weak; suffers from palpitation of the heart, cramp in the stomach, flatulence, cold feet and hands, and other troubles, and at last exhibits all the symptoms of fully-developed chlorosis.

There is, however, also the hereditary predisposition to chlorosis, which then repeats itself in all the female members of a family, generation after generation. The accompanying troubles, or symptoms associated with chlorosis, are many and various in their nature. Disturbances of the digestive apparatus are always present, and are shown by a bad taste in the mouth, a morbid taste in regard to foods, causing an excessive desire for highly-seasoned, hot or peppery, salt and sour dishes, and even for articles that are not proper articles of food at all, such as chalk, etc., thorough loss of appetite, alternating with ravenous hunger, flatulence, vomiting, pains in the stomach, bad smelling breath, heartburn, etc. The urine is of small quantity, clear and watery, and occasionally contains a slimy deposit. In the sexual sphere the patient suffers from amenorrhœa (failure of menstruation), or irregular

and painful menstruation. The blood that comes away is either slimy or pale red, and small in quantity, or the flow is abundant and of abnormally long duration. Leucorrhœa, or "whites," is commonly present. Oppression of the chest, shortness of breath, frequent catarrh of the air passages, the nose and the larynx; palpitation of the heart; weak, small, rapid pulse; wanting in tone; visible throbbing of the artery of the neck (carotid artery); a peculiar blowing noise over the inner jugular veins, known as venous hum or murmur, or *bruit de diable*.*

Bleeding at the nose, and other symptoms, give evidence of how the respiratory (or breathing) system and the circulation of the blood are interfered with. Very often the cushion of fat (*panniculus adiposus*) in the sub-cutaneous cellular tissue is excessively developed, and the withering skin is hidden by the turgidity or swelling. When there is great emaciation, or when this sets in, in the course of the disease, there is reason to suspect the presence of tuberculosis in the lungs; likewise dropsical swellings are often observed, mostly on the eyelids and on the ankles. Rest in bed will, however, often cause these phenomena to disappear rapidly. The livid paleness of the skin, especially in the face and neck, above mentioned, arises in consequence of stagnation of the lymph. The skin is of a peculiar waxy, watery, transparent texture; the face is generally swollen; the lips, the gums, the tongue, the eyelids and the nostrils, are pale, and the white of the eye has a blueish tint. The paleness is most visible on the ears, if even (as is often the case at the beginning of the trouble) the cheeks retain their colour for some time longer. Headache, pains in the back, toothache, and other pains; cold feet and hands, and a general feeling of cold over the whole surface of the body; susceptibility to chill and shivering, and a multitude of other phenomena, which I have not the space to enumerate, make up the complex symptoms of chlorosis.

In the curative treatment one must, in the first place, direct one's attention to the removal of the cause; next, one must take into account the rules for the "General Strengthening

* The venous hum is audible in the throat by the use of the stethoscope (see under "Auscultation") in the region of the jugular vein, especially on the right side. At the examination the patient should hold her neck stretched out, the head somewhat bent backwards, the chin high and the mouth closed.

or 'Tonic Treatment,' in which the chief role is played by sun baths, and light and air baths. In general, residence in the country, especially in forest air or at the seaside, where there is plenty of oxygen, and where the air is warmed with the sunlight, is the best means of cure that one can possibly prescribe to chlorotic, town-bred girls.

It is not open-air exercise that is of so much importance, as the exclusive enjoyment of the fresh air itself. Weak patients may therefore, during the earlier part of their stay in the country, content themselves with passing all their time resting in hammocks, or on couches out in the open air. As a substitute for the exercise that is wanting with those that follow this course, a general massage of the whole body is to be recommended, or one may apply massage of the abdomen only (First Hand-grip), followed by the passive movements of the Health Gymnastics (Figs. 199 to 207) gently carried out. In addition, at the commencement of the treatment, complete baths at from 90° to 95° F., hip baths from 86° to 90° F., or trunk baths from 82° to 86° F., lasting from five to ten minutes, taken in any order on alternate days. Then increase the programme by washings down of the whole body every morning with water at from 72° to 83° F., or damp patting at from 77° to 81° F. In cases of declining power of reaction, and want of natural warmth, one must, in unfavourable weather, try to supply the place of the sun baths by mild reclining vapour baths (No. 1 or No. 3), or cane-chair vapour baths. The patient then passes on, by degrees (if the condition has visibly improved), to walking barefoot, walking in water, knee and leg douches, and a little later on we venture, once at any rate, a complete shower bath and a back shower bath, also lukewarm sitz baths at 86° F., enemas at 77° F., nightly fomentation of the abdomen at 77° F., foot baths, leg baths, and arm vapour baths may be recommended in suitable cases.

The clothing and bedding must be warm, but, at the same time, both light and porous; the costume adopted should be Wörrishofen's "Reform Costume," and one should sleep either in Steiner's "Reform Bed," or on a Jæger woollen bed. (There is no doubt whatever, that even for the healthy, and certainly for those whose condition requires plenty of fresh pure air, avoidance of chills, and the free exhalation of all poisonous gases given off by the body, there is no clothing so suitable as Jæger stockinette, of pure wool, next to the body, and

loosely-woven pure wool garments outside it, and there is no bed so healthy to sleep upon as a pure wool, or pure hair and wool mattress, covered in the Jæger wool ticking, and resting on an open wire-spring mattress, and covered only with thin pure wollen sheets and Jæger woollen blankets.

The wearing of corsets must be avoided. The food taken should be simple, non-exciting, and easily digested. Above all things in the world, the patient must not go in for so-called "strengthening" diet, such as coffee, eggs, beefsteaks, red wine, porter, and other apparent means of giving strength. Milk, fruit, vegetables, light farinaceous food, milk and egg puddings, and general vegetable diet, give quite enough strength and power. To quote the popular German verse, "Obst und Brot färbt die Wangen rot,"

Fruit and bread
Make the cheeks rose-red.

The patient should carefully avoid taking iron, or medicines containing iron. (See pp. 334 and 335). Occasionally chlorosis is cured by mere change of climate, marriage, and even by the stimulating influence of a passionate love affair. Also a little dance in the open air, or in a pleasant assembly room, among a small but vivacious company — not excessive dancing the whole night through in over-heated ball rooms — in addition the Cycle of Movements No. 1, in the Active Health Gymnastics, often have a favourable influence in promoting the recovery of health.

Cholera is one of the most rapidly-fatal of all plagues, and not without right the bare name of this disease fills people with fear and dread. Until the year 1818, nothing was known in Europe of cholera; it was brought over to us from Asia, especially from India, from the banks of the Ganges, and from Brahma Putra. It was observable, in this instance, how the plague followed the path of intercourse between men, and spread itself further in connection with this international intercourse. And in consequence of the progressive modern arrangements for travel and international intercourse, which favour more rapid travel among men at the present day, there is a more rapid spread of the plague in question.

Three grades of this disease are distinguished: 1. Simple choleraic diarrhœa; 2. Cholérine; 3. Proper or fully developed cholera. There is a further distinction made—subdividing developed cholera into native cholera (*cholera nostras*),

and Asiatic cholera (*cholera Asiatica*). As I have explained in the First Part of this book, Chapter 37, it is not all persons who are attacked by this much-dreaded plague, for one must be susceptible to this disease. The susceptibility is greater or less in different persons, and depends upon the greater or less extent to which the body is laden with disease-producing matter, or with morbid materials; upon the strength of the constitution, and upon the habits of life of the individual. Chronic invalids, especially those who suffer from disturbances of the digestion; drunkards, gluttons, wastrels, and so forth, form the beloved objects of this plague. While, on the contrary, relatively healthy, sober persons, who lead a moderate and regular life, are generally spared. Faults of diet, gastro-intestinal catarrh, excesses and dissipations of all kinds, catching cold, mental excitement, fear of infection, etc., increase the susceptibility. When to a person in the condition so produced there comes contagion, as a provocative impulse and immediate cause of the disease (which consists, according to Professor Robert Koch, of the cholera fungus, the comma-bacillus, a rod-like form of fungus that looks somewhat like a "comma" in shape), he is attacked by cholera.

The simple choleraic diarrhœa is the mildest and most frequent form of the disease. It is, as a rule, not distinguished from ordinary diarrhœa, and is only accorded so much attention because it sets in during a cholera epidemic. At the same time it must be admitted that even this simple form of diarrhœa may not at once become cured, but may rather turn into a severe and fully-developed choleraic attack. In the latter case the individual attacked must have been favourably disposed for the further development of the disease. The diarrhœa is shown by the following symptoms: rumbling sounds in the abdomen; increased and thinly fluid motions, faintly coloured with bile, without pains in the abdomen, and with only very slight disturbances in the general health. Choleraic diarrhœa may last a week before it is cured.

Cholérine exhibits the second or more advanced form of the disease, and generally arises out of a neglected or improperly treated attack of choleraic diarrhœa, although it may also arise independently. Cholérine is in its symptoms very like the true cholera. Cholera arises in the form of a sudden attack of violent diarrhœa, accompanied by vomiting, with very numerous and very abundant thinly fluid motions

which contain more or less bile, and which at first have somewhat the appearance of gruel or soup made with flour, and then like that of rice water. At the same time there are more or less severe disturbances of the general health. The patient is soon exhausted, has violent thirst, feels weaker or stronger twitchings and drawings at the calves, and so forth. In general the same subjective symptoms show themselves as in the case of an attack of true cholera. An attack of cholerine is, however, when properly treated, and remedies are applied without delay, not so dangerous to life as true cholera. Under favourable conditions cure already sets in after two or three days, while, under unfavourable circumstances, two or three weeks may elapse before there is a complete recovery. The patient for some time after recovery has a tendency to relapse at any mistake in diet, or any excess, or at the impulse of every provocative cause. If cholerine turns into fully-developed cholera, then it may, though in rare cases, terminate fatally from total exhaustion, in as short a time as twenty-four hours.

The true and fully-developed cholera is the last and severest form of the plague. Since the native and Asiatic forms of cholera have almost exactly the same clinical picture, both forms of the plague shall be here described together. In a vast majority of cases the attacks are preceded a few days or hours by symptoms of choleraic diarrhœa, as described above. The real attack then sets in, in the night time or at midnight. The patient is awakened out of his sleep by oppression of the chest, suffers great fear, palpitation of the heart, and irrepressible vomiting, accompanied by a feeling of pain in the region of the stomach. The vomiting is frequently repeated, even as many as from fifteen to thirty times and more in the course of a few hours. At first what is brought up is the last food taken, then bile and mucus, and finally a fluid that looks like rice water. Then, in rapid sequence, come evacuations of the bowels, pouring away in a stream, accompanied by pains and rumbling sounds in the stomach. Sometimes the motions are so continuous, that the patient does not dare to leave the night-commode. At first the diarrhœa is pappy, then, during the course of the disease, it becomes gradually thinner and thinner, like soup made from flour, or thin gruel, whitish-grey, and finally watery, like rice water, and in the end colourless and without any smell. At the same time the patients are tormented by a

burning and irrepressible thirst. There is, on the other hand, a disinclination to take any kind of food whatsoever. With these symptoms are associated muscular cramps, especially cramps of the calves; great fear and restlessness, oppression of the chest; loss of all power in the voice, which becomes very hoarse, etc. The secretion and passing of urine is entirely stopped. In this condition there is observed in the patient a striking indifference to everything, and want of interest in all his surroundings, and with this symptom begins what is known as the declining stage of the disease. The face falls in, the nose becomes pointed, and the eyes are encircled by a blue rim, sunk deeply in their sockets; the eyelids are half closed, and the eyeball is turned upwards, so that through the opening of the lids the white of the eye is seen glimmering. The pulse becomes very rapid, and small to vanishing point; the breathing is troublesome; the skin is cold, blueish grey, and withered and sticky with sweat. It can be lifted and moved about in folds, which do not then disappear. The evacuations cease, and unconsciousness, and finally death, supervene.

The duration of genuine cholera is, as a rule, only from twenty-four to forty-eight hours. In cases in which the sufferer recovers from the attack, the first favourable sign, which also marks the turning point of the disease, is the restoration of the secretion of urine. The urine, however, is not passed in normal quantities until after several days, and is then almost always albuminous and somewhat bloody. The evacuations of the bowels become gradually firmer; the pulse, the breathing, and the activity of the heart, gradually become again normal, and in from one to two weeks the cure is usually completed. In many cases, however, a patient recovers from the cholera attack, but is not cured, falling, instead, into a condition which bears a strong resemblance to typhus. High fever, indifference and want of interest in all that goes on around him, or unconsciousness, dry tongue, diarrhœa, a reddish eruption on the skin of the trunk, and many other symptoms, characterise this condition, to which the name of choleraic typhoid has been given.

In the treatment of choleraic diarrhœa, cholera, and fully-developed cholera, three aims have to be kept well in view: 1. To counteract the loss of water which the organism suffers in consequence of the evacuations of the bowels and the vomiting; 2. To ease the pains; 3. To excite the activity of the skin.

In order to fulfil the first task adequately, the patient must be given abundant draughts of fresh spring water, mixed with lemon juice or the juice of other fruits, and any slight appetite that may be present must be satisfied with lukewarm, mucilaginous soups. The patient must then be given, without intermission, laxative enemas at from 73° to 77° F., in combination with subsequent cold clysters at from 64° to 66° F. The laxative enemas, of which one may give as many as twenty in a single day, may contain from a pint to a little under a pint-and-a-half of water. The small cold enemas are to contain from half to three-quarters of a wine glass of water. The inflammation of the rectum is relieved through the application of the enemas. The sharpness of the evacuations is diminished, the rectum is cleansed, and its mucous membranes are again put into a condition capable of absorbing water, a function of which the other portions of the intestines are entirely incapable during a choleraic attack.

In order to relieve the pains, especially those of the calves and the abdomen, the application of vapour compresses on the suffering parts is to be recommended. The most important task of the treatment, however, is the stimulation of the activity of the skin, for if the patient can be got to perspire, he is saved. When the temperature of choleraic patients has been taken in the rectum, or, in the case of women, in the vagina, it was found that it had risen to from 103° to 104° F., or even higher, while a taking of the temperature in the armpits only showed a temperature of 97° F., or even as low as 95° F. Thus the chief danger that exists in cholera is in the excessive internal heat, whereby the feeling of an internal burning, of which so many patients complain, is adequately explained. It is a question then of removing this great internal heat, so dangerous to life, and this is accomplished by leading it off through the skin.

In the first stage of the disease, when the vomiting, the discoloured evacuations, the cramp in the calves, and the cold skin have set in, administer to the patient cold wet friction (see p. 451 and the following pages, as well as pp. 458, 459) of a duration of from five to seven minutes, and then, without drying the patient, put him in a dry pack (p. 514); and after half-an-hour the dry pack should be opened, and a thick, stimulating poultice placed on the abdomen, extending from the navel downwards; then the dry pack should be closed again over the pack. Administer a thorough rubbing to the

patient's arms and legs. After from one to two hours this procedure should be repeated, and one should continue in this manner until sweating has set in. Patients of weak constitution may, before the friction and the dry pack, also have the application of vapour (Kuhne's cane-chair vapour bath), reclining vapour bath Nos. 1 or 2, cane-chair vapour bath (Fig. 116), or foot vapour bath (Figs. 127 and 128).

In the second or declining stage of the disease, when the skin has become dry and perfectly cold, the face fallen in, cramp of the muscles set in, together with retention of the urine, altered face, and a no longer perceptible pulse, etc., the application of damp warmth is to be entirely omitted, as it is perfectly useless. The only thing that can possibly save the patient is cold stimulation, moist cold friction with the coldest possible water — where it is possible, iced water — should be applied; and the coldest possible water should be poured over the patient during the friction process. Cold hip baths at from 64° to 68° F., in which the patient is continuously rubbed, either with the bare hand or with wet cloths, and in which cold water is poured over him; cold shower baths, douches, etc.; iced water given internally, until the skin of the patient reddens, are the means to be employed. Then the patient should be laid, without drying, in a dry pack (see p. 514). If after one or two hours no sweat breaks out, and the decline continues, then repeat the same treatment. There is no other means possible by which the patient can be saved, except the "most brutal" application of cold.

Cholera Nostras of Children.—Scarcely any other disease causes so much devastation and mortality among young children in hot summer weather as does the much-dreaded infantile diarrhœa, or the diarrhœa accompanied by vomiting. On account of its similarity to the genuine or Asiatic cholera, it is called "cholera nostras," that is to say, native cholera, which appears as an epidemic, and is especially prevalent during the months of June, July and August. In the first and second years of life it causes the greatest mortality among children, while with every succeeding year of life the danger of diarrhœa accompanied by vomiting progressively diminishes. The immediate provocative cause of the disease is considered to be the presence of bacilli, or micro-organisms (see under heading "Bacteria"), concerning whose presence one may draw a favourable or an unfavourable

inference, according to the character of the trouble. Meanwhile, however, as we have already stated, predisposition, or a susceptibility, is necessary to the outbreak of this infectious disease. A weakened child's body, made delicate by poison with the so-called "protective" vaccine, or otherwise injured by improper food or coddling, requires only the slight external impulse of chill, a wetting through, an injudicious meal, or some other incidental cause, in order to favour the ingrafting of bacilli in the substance of the body, already in a state of fermentation, and then the diarrhœa is there.

Premonitory symptoms are seldom present. In some cases, where there is constipation lasting two or three days, diarrhœa and vomiting set in as a consequence of an enema administered to correct the constipation. If the disease appears in only a mild form, then the child, with proper treatment, may be quite well again in two or three days. Such cases are unfortunately, however, of very rare occurrence. The beginning is, as a rule, stormy; there is excessive watery diarrhœa of the appearance of rice water, and a continuous vomiting, either alternately or simultaneously, and this causes a rapid falling off of the child's strength. The face takes on an aged expression, the eyes are sunk deep in the sockets, the nose becomes pointed, the fat vanishes with striking rapidity from every part of the body, the whole surface of the skin becomes pale and cold, the skin of the little legs, and particularly on the inner side of the thighs, becomes full of folds and wrinkles, as well as, in consequence of the continual evacuation of the bowels, the flesh becoming raw between the legs from the perineum down to the knees. The child is at the same time very restless, exhibits such symptoms as sleeplessness, apathy, gradual dulling of the senses, convulsions, etc. The unfavourable termination of the disease may take place in from twenty-four to thirty-six hours, and death may supervene. If cure follows, then the vomiting leaves off, the number of the evacuations diminish, and a quite refreshing sleep of many hours' duration sets in. Occasionally, however, infantile diarrhœa becomes chronic, and the child then falls a victim to a wearisome wasting away, which then exhibits the disease in varied forms.

With regard to the treatment of violent diarrhœa, prophylaxy or prevention should play the most important role. The artificial feeding of suckling infants with cow's milk is a very frequent cause of infantile diarrhœa, even where the

cow's milk is undoubtedly good, because it is of a different composition to mother's milk or the milk of a wet nurse, and therefore does not correspond to the physiological requirements and capacities of the digestive apparatus of suckling children. Of course it need not be said that milk of bad composition (milk from diseased or badly-nourished cows), or milk that is in any way adulterated, must exercise still more unfavourable influences on the infantile digestive organs. The many substitutes or artificial foods that are so common in trade for the feeding of young children must also be characterised as dangerous to life, in so much as they are contrary to nature, for the sole and only normal right and natural nourishment of a suckling child is the mother's milk. It is therefore the first and most sacred duty of a mother to suckle her own child, in so far as she is able and fitted to do so, that is to say, in so far as she is healthy and has enough milk. She must treat with contempt the more than idiotic social prejudice, and the entirely baseless fables as to suckling being injurious to her beauty. She will then save herself the risk of so easily letting her child become the victim to infantile diarrhœa, and perhaps losing it. The suckling mother should then observe the following rules: When she has given the child the breast, she should cleanse her breast and the mouth of the child with a clean soft linen rag dipped in cool water. The water should, however, be previously boiled; moreover, she should never give the child anything to drink merely to quiet its crying, but only at fixed intervals, that is to say, every two hours. If, however, the mother is ill, or has no milk in the glands of the breast, then of course she must either have recourse to a wet nurse—a course which is combined with all kinds of inconvenience, and even with direct dangers for the child—or to artificial feeding. (On this subject see further, under the heading "Suckling or Nursing Infants.")

When, however, this destructive disease has actually broken out, then one should give the child either pure or very well-cooked oatmeal pap, strained through a sieve, without milk, salt, or sugar, or, as the Natural Treatment physician, Dr. Bohm, has advised, lukewarm milk of almonds mixed in equal proportions with the juice of boiled figs; there should also be administered daily very frequent laxative enemas at 77° F., in combination with a subsequent small cold enema. If the child refuses every kind of nourishment, then give him often during the day laxative enemas at 77° F.,

and afterwards an injection, that is to be retained, of milk of almonds (one to two teaspoonsful) (Bohm). Then the child should be bathed frequently during the day in a complete bath of 93° to 95° F., or should be given a mild reclining vapour bath No. 4, in combination with subsequent washing of the entire body with water at from 82° to 86° F., and during the time when the child remains in bed there should be continually applied moderately hot (104° to 106° F.) vapour compresses on the abdomen, which should be renewed every five to seven minutes. Cold feet are to be prevented by the application of hot water bottles wrapped up in a damp cloth. In the convalescent stage the child should be given complete baths at from 88° to 90° F. All internal medicines are to be strictly condemned, they only endanger the child's life to the greatest possible extent.

Circulation of the Blood. (See "Blood Circulation.")

Coition, or sexual intercourse, is one of the natural processes proper and necessary to the bodies of adults of both sexes. There is, however, hardly any function of the organism that, when exercised at too youthful an age, or too frequently, is more destructive for both body and mind. Among the large number of general diseases which come from excessive sexual indulgence, nervous weakness, with its large number of complex symptoms, weakness of the will, dulness of the intellect, hypochondriasis, hysteria, impotence, morbidly excited sexual impulse, as well as local diseases of the sexual organs, take a prominent place. In contradistinction from the lower animals, who are only capable of copulation during the so-called "rutting" period, kind mother Nature has given to man the capacity, up to a certain age, of carrying out the act of coition at any time, in order that he may have the opportunity of showing his intellectual and moral qualities in the exercise of control over the most powerful of all impulses, and so of displaying the right exercise of Free Will.

At the same time, the unnatural conditions of our existence ensure the disregard of the ethical side of coition—the loving union of two beings of the same species, but of different sex. In place of the healthy natural impulse, there is a nervous excitability in the sensual sphere. Enjoyment, and not the perpetuation of the species, is looked upon as the chief end of legitimate sexual intercourse, and mankind loses

the perception of the fact that the act of coition should involve a strengthening of the moral character in virtue and in feeling, by means of the duties which arise as the result of union of the flesh. In our over-excited modern life must be sought the reason why sexual intercourse, instead of being a source of strength for the functions of both body and soul, has become an inexhaustible source of bodily, mental, and moral degeneration for both sexes.

Only a return to nature and to a natural mode of life can lead back the sexual impulse into its normal and healthy paths. On the other hand, entire abstinence from legitimate sexual indulgence generally produces bodily, and especially mental disorders, as one can observe from the eccentricities, peculiarities and complaints of old bachelors and old maids.

Cold Bath (Kneipp's System). (See Index.)

Cold Catching. (See Index.)

Cold Feet. (See "Feet, Cold.")

Cold Fever. (See "Ague.")

Colic.—Colic comes on in attacks, and is produced by acute or chronic poisoning (lead colic), through partaking of food that has gone bad, ice-cold drinks, through accumulation of excrement in the bowels, through catching cold in the abdomen or the feet; through diseases of the liver, the kidneys, the female generative organs, and so forth. The site of the pain is, as a rule, in the middle region of the abdomen around the navel; when the pain is very violent it also extends down to the generative organs, or often down to the thighs, and up to the breast and away towards the back. The kind of pain is cramp-like, griping and drawing. In cases of a violent attack the patient's face becomes pale, the whole of the surface of the skin of the body cold, the pulse small and hard, and the whole body is, as a rule, covered with a cold, tough, sticky sweat. The patient cries, whines and groans, and doubles himself up, lying on the side so that the thighs are drawn up against the abdomen, or he lies on his abdomen in a half-kneeling position, or tries to press it against some hard object.

When colic is an accompanying symptom of some other or more extensive disease, then the treatment must be first directed to the removal of the primary disease. In order, however, to render palliative assistance, at once, to the patient, apply, in alternation, at intervals of five minutes, vapour compresses on the abdomen, or administer sitz baths at 95° F.,

the temperature of which is to be gradually raised, through the careful pouring in of hot water, until it reaches 106° F., and which are to be of a duration of from ten to fifteen minutes or longer. One may also have recourse to soft strokings and kneadings (abdominal massage), in which case the stomach also is to be treated. After the attack the patient should be given a laxative enema at from 73° to 77° F., and a stimulating abdominal pack at from 73° to 80° F. should be applied.

Colon, Inflammation of the. (See "Intestine, Catarrh, Acute, of the.")

Commode Vapour Bath, according to Kneipp. (See Index.)

Compresses for different parts of the Body. (Refer to Index.)

Compresses. (See Index.)

Condyloma. (See "Gonorrhœa.")

Confinement. (See "Lying-in," etc.)

Congestion of Liver. (See "Liver, Diseases of the.")

Congestion of Kidneys. (See "Kidneys, Diseases of the.")

Constipation, Habitual. (See "Costiveness.")

Consumption. (See "Pulmonary Consumption.")

Consumption. (See "Wasting, Tuberculosis, Phthisis.")

Consumption, Galloping. (See "Phthisis.")

Contagion is a process by which a certain disease is conveyed from one individual to another whose body is already fully predisposed to this form of disease. The infection is caused either by contact of the skin or catching the breath of the afflicted person. (Further details, see Chap. "Directions for the Prevention of Contagion.")

Contraction, Closure of the Rectum. (See "Rectum.")

Contusions. (See "Bruises.")

Convulsions. (See "Cramp.")

Cooling.—When the body is at a high temperature, through rapid organic changes, exciting movements, severe muscular exertion, hot foods and drinks, rich foods, or feverishness, we should rid ourselves of the superfluous heat, that is, cool the body by restful quiet, partaking of refreshing acidulous and cool drinks, drink cold water to promote per-

spiration, and, by its evaporation, cool the body. Externally we should apply moderately cold or cool washes, lavations, hip baths, sitz baths, whole or three-quarter packs, the wet shirt or Spanish mantle, in a fever-allaying, that is, cooling and soothing form. (See these applications, under their headings in Index.

Corns. — The widespread ailment of corns can easily be avoided if, as unfortunately too seldom happens, a well-fitting, well-shaped, neither too wide or too narrow, nor yet too roomy a boot or shoe be chosen. It must correspond exactly to the shape of the foot and sole, and in the width of the upper leather likewise. Also the material must consist of a soft-yielding leather (p. 96). The heel must not be too high, or else the toes will be driven forward, compressed and bent. Corns are also caused by coarse or thickly-darned stockings, or stockings becoming stiff from perspiration and dirt; want of requisite cleanliness and care, etc. Corns are found on the joints of any part of the toe which is exposed to continual pressure. They are just like callosities in the hands, the consequence of pressure, and are characterised as horny degenerations of the outer skin, round which concentrated layers are formed, surrounding and covering the whole after the fashion of a wall or rampart. The presence now as of a foreign body is felt, pressing the root against the deep-set healthy tissue, rich in nerves and vessels, and this produces a pathological change, which, by annoying pains, attains a complete mastery over the possessor of the corn. Should it penetrate as far as the bone, frequently, in consequence of friction between the bone and corn skin, under the root of the corn, a little bag of matter is formed, which is intimately connected with the neighbouring (toe) joint.

The treatment of corns consists in applying, nightly, a very thick stimulating poultice (63° to 67° F.), which should then be wrapped in wool. Over the bandaging a woollen stocking should be drawn. A foot vapour bath, or a hot changing foot bath might be advantageously used for the packing. Should the corn be softened by very many packs, its skin should be picked off with the nail, and an attempt made to draw it out. Should this manœuvre fail, it should be cautiously scraped with a sharp knife — not cut. Should the core in the middle be felt, it should, if possible, be taken out with the point of a knife. In the vacated hollow a thick layer of softening plastic soap, ammonia, or diachylon plaster, should

be placed, so that it corresponds to the circumference of the outer edge of the core cavity. The entire cavity should be stuffed with scraped fat, and bound up with sticking-plaster, together with the toe. By frequently repeating the whole process, the prevention of a recurrence is accomplished.

Copper Poisoning. (See "Poisoning.")

Copulation. (See "Coition.")

Cornea, Inflammation of. (See "Eyes, Diseases of the.")

Cornea, Spots on. (See "Eyes, Diseases of the.")

Corpulence. (See "Obesity.")

Corset. (See "Women, Diseases of.")

Costiveness, Habitual Constipation.—If the discharge from the bowels is interrupted for any length of time, the condition is described by the terms costiveness or constipation. Generally speaking, constipation is nothing else but a symptom of a different disease, and disappears when the cause is removed. Costiveness, however, is made to take a front place so frequently in the case of apparently quite sound persons — quite concealing the real trouble — that by this circumstance it has acquired the character of an independent disorder. Relief of the bowels takes place once or twice in the twenty-four hours, with healthy people, often at the same hour of the day. With invalids an interruption occurs in this regularity, so that the fæces are often retained in the bowels for a week, or even a fortnight. The worm-like motions of the intestines are either lessened, or altogether stopped, and this interruption may arise in many ways. For instance, falling of the womb, especially a displacement backwards, is always connected with constipation, as through the pressure on the rectum it prevents it from performing its function. Persons of sedentary habits, especially if they accustom themselves to a gross indigestible diet, suffer from costiveness. Insufficient digestion of food causes an impeded circulation of the blood in the organs of the abdomen, especially in the portal vessels and liver, consequently an imperfect preparation of the bile ensues; the fæces become hard and dry in the bowels, travel very slowly, accumulate in one or other spot, and the organ breaks down at last in its efforts to propel its contents any further. At the same time, because of all this, various blood vessels, nerves, muscles and glands round about the intestines are weakened, and discontinue their functions. Stout people frequently suffer from constipation,

because their abdominal muscles are fatty, and the action of the bowels is more or less interfered with this. The most stubborn cases of constipation are usually treated by the continual use of purgative remedies, which eventually paralyse the motions of the intestines. As further causes of costiveness, may be mentioned perpetual drug-taking, feverish and constitutional disorders, abdominal pains, certain forms of weaknesses of the spinal cord, nervous disorders (hypochondria, hysteria, etc.). Finally, these also tend to the same end, perverted notions and habits which bring on the so-called "habitual constipation." This affects persons who, in consequence of too much work, or through some inconvenience, neglect to set up regular habits, or through false delicacy, or for decency's sake, or any other cause, turn a deaf ear to nature's call. This injurious practice generally brings on the sufferings of constipation. The fæces, unnaturally retained, lose all moisture by their retention in the bowels; they mass closely, harden, and cannot, except with great difficulty, be forced out, and this only by great straining of the abdominal coatings. Should this suppression occur frequently, the sufferer loses the power of relieving himself in the natural way, and is forced to have recourse to enemas and other mechanical help. Slight cases of constipation present no difficulty, but more serious cases cause congestion in the head and chest. The fæces, in habitual constipation, are not worm-like in shape, but small and rounded masses, very dark in colour. Unnatural retention in either of the intestines leads to an eventual closing of the passages. Hemorrhoids, unhealthy evacuations, weaknesses of the womb, and other evils, are frequently brought about by constipation.

The treatment should aim first at the relief of the original cause. Apparently independent constipation requires the application of stimulant enemas, 72° to 81° F., in conjunction with small cold ones, 64° to 68° F.; or two or three hip baths (81° to 85° F.) a day, for ten to fifteen minutes; or of baths, 85° to 89° F., as often and for the same length of time. A special curative factor is massage of the abdomen, with the following course of exercises (Figs. 192 to 197, 199 to 207).

Proceed according to the instructions, either every day, or every second day. Persons who treat themselves, either from choice or necessity, should massage themselves every

morning on awakening, and carry out, either at the same time or later in the day, the Course No. 4 of the "Active Curative Gymnastics." In cases of costiveness, or of rupture, follow the instructions given under that heading (p. 1148).

The diet should be mainly vegetarian, and include a great deal of green food, cereals, fruit (cooked or raw), and wholemeal bread. Peas and beans are best taken strained. As a point of diet, "love of water" is highly beneficial to the patient. Take plenty of open-air exercise, riding, gymnastics, skating, and practice "Breathing Exercises" out of doors. Accustom yourself every morning, either immediately after rising and drinking a glass of cold water, or later, after breakfast, to go to stool, even if at first there be no inclination for it. Should this effort be futile, nature will gradually accustom herself to the habit, and opening of the bowels will ensue at this hour. This will then go on without artificial help. It is as well to spend some little time, say a quarter-of-an-hour. It is a small sacrifice of time for health's sake, and we must remember that no great results are ever achieved without endurance and patience.

Cough.—Coughing is an expiration by means of which the air is forced, in a spasmodic and convulsive manner, through a contracted fissure in the vocal organ. The noise resulting therefrom is termed coughing. Convulsive action is set up by irritation, which may be localised in the upper throat, or in the trachea or windpipe. This condition may have been caused either in consequence of external agency, as, for instance, the inhalation of dust, or a mechanical grinding matter; or from internal disease, as the collecting of phlegm in the above-named organs; or dryness of their mucous membranes, resulting from either the simplest catarrh or a lung tubercle. A dry cough is, in any event, to be attended to, as it proceeds from undue irritation of the outer covering of the lung and ribs. The learned reader will observe from the context, that coughing is not a disease standing aloof from others, but the accompanying symptom of diseases of many different kinds. Now, as the therapeutics of the natural system direct their chief attention to the removal of the fundamental disease, so it will be apparent to the reader that the Natural Cure Treatment gives no prescription for coughing, and he will prescribe for himself. As, I repeat, it is a consequence of many kinds of diseases which, corresponding to the symptoms they present, require many-sided treatment. It lies only in

the alleviation of the fundamental disease that their symptoms, in this coughing, can be thoroughly removed. (See further, "Bronchial Catarrh," "Phthisis," etc.)

Cramp, Eclampsia, Convulsions.—By cramp is understood all unhealthy involuntary action or contraction of the muscles. This may take place in the involuntary as also in the voluntary muscles. Cramp, in the contracted condition of the affected muscles, lasting for hours or days, is called "tonic;" in its intermission with moments of relaxation it is termed "clonic." Both forms may be present at the same time. Cramp arises partly through irritation of the motor nerve branches of the grey brain substance, and partly through reflex nerve action (reflex cramp). In cases where the origin of the cramped condition lies in the central organs of the spinal cord, it is known as spinal or cerebral. When its action extends so as to include the entire surface of the nerve ramifications, it receives the name of "peripheral." In eclampsia, or convulsion, twitchings of the clonic species are understood.

Cramp is seldom found apart from other ailments, but is for the most part symptomatic of another disease. It arises from a state of general ill-health manifesting itself at an opportune time.

For the removal of cramp in any of its forms, the fundamental cause must be attacked. For further reference, see "Cramp (Eclampsia) in Children," "Cramp (Eclampsia) of Lying-in Women," "Numb Cramp," "Epilepsy," "St. Vitus' Dance," etc.

Cramp (Eclampsia) of Lying-in Women.—Cramp is not only confined to children of tender years, but also attacks enceintes, and, most of all, lying-in women. It is often considered to be the result of Bright's disease, but, generally speaking, the primary cause of the disease is veiled in mystic darkness, although it is pretty certain that a predisposition, in the form of overweening sensibility of the nervous system, lies at the root of eclampsia. Women confined for the first time, although apparently of excellent constitution, are proportionately the greatest sufferers from the form of the disease in question. The following signs—usually, however, misconstrued—warn us of an attack of cramp, which frequently occurs in the act of birth: sickness, giddiness, headache, excitement, and unrest. It comes on suddenly, with quick-as-lightning twitchings of the limbs, which move involuntarily. The head

is sometimes thrown forward, backward, or sideways. The eye is either fixed or rolling, the upper and lower jaw is for the most part set, the face is puffed up and reddish-blue, the mouth foams, the breathing is hard, and all the muscles of the body are as stiff as boards. The attack lasts from a half to two minutes, when the cramp ceases and leaves the patient in a state of stunned collapse. When restoration has taken place, she has no recollection of what had previously happened. Her memory is, as it were, blank and void, and complete exhaustion sets in. The attack generally appears with increasing intensity; the patient loses her memory, and even moments of consciousness, and eventually death takes place in the course of the attack. When a recovery takes place, the after-consequences are frequently paralysis, disturbance of the organs of sight and hearing, severe nerve troubles, mental afflictions, etc.

The treatment in attacks which have been overcome consists in the application of the half-bath or the body bath at 86° to 90° F., lasting from ten to twelve minutes. Once again in bed, stimulating compresses at 73° to 77° F., on the region of the stomach, another to the head, and calf packs at 77° to 81° F. should be applied. Cold hands and feet require hot water bottles, encased in wet cloths, applied to them. Or a bed vapour bath (No. 4), together with subsequent bathing at 82° to 86° F., may be carefully given.

As a preventive against further attacks, the general health-invigorating treatment should be followed out. Attention to the directions given (in I. Chap. 28) on sick nursing during an attack must also be paid. No delay should take place in calling in an experienced physician.

Cramp in the Calf of the Leg is an atonic spasm, which generally sets in during the night, but seldom lasts long. After the cramp has passed away, a feeling of tension and weariness generally remains in the muscles of the calf. A great strain on the muscles, such as one caused by long marches, dancing, etc., is often the cause of this cramp, but, as a rule, the cause lies in a disturbance of the circulation. Patients frequently suffer from this cramp after there has been a considerable waste of the humours. Further, this form of cramp is a symptom which appears just before an attack of cholera.

Use the "General Strengthening Treatment." In the night the calf of the leg should be enveloped, the wrapper being

at a temperature of from 77⁰ to 81⁰ F. Foot baths should be taken every evening, and the legs massaged once or twice a day. The use (once daily) of Cycle No. 10 of the Simple Curative Gymnastic Exercises is strongly recommended.

Cramp of the Chest. (See "Asthma.")

Cramp of Children.—Cramp is a very frequent children's complaint, especially occurring in babies. It is epileptic in its form, and appears generally with more or less disturbance of consciousness. Its issue is often fatal. Weakly children, whose parents are epileptics, or troubled with any species of nerve trouble, are specially liable to this ailment. Also apparently healthy children (infants) are frequently attacked by it, when some baneful reflex operating influence, transmitted through the nerves, affects the highly irritable infantile brain, and, acting on the grey brain matter, sets up cerebral cramp. Amongst the occasional and predisposing causes of infantile cramp may be mentioned catarrh of the stomach and bowels, worms, rapid change of temperature, improper nourishment, diseases of the mouth cavity, (sores on the mucous membrane of the mouth), teething, foreign bodies in the nose or ears, etc. Children, from babyhood to about three years of age, are, after attacks of infectious diseases, as whooping cough, croup, measles, scarlet fever, inflammation of the lungs, etc., frequently seized by cramp.

Cramp symptoms are very similar to those of epilepsy. An attack comes on either suddenly, or by more or less ominous forebodings, such as restless sleep, sleeping with the eyes open, dejection, wilfulness, half-consciousness, disinclination for play, inclination for crying, twitchings of the face, grinding the teeth, fixed eyes, frequent coming and going of colour, etc.

The attack, in the infant, generally has the appearance of infantile epilepsy, and I call attention to the remarks made (under Epilepsy) in order to avoid the repetition of them here. Single attacks fluctuate much in their duration. They range from one minute to one hour, and, in many cases, to even one day. A child may get over one attack only to fall into another, and with complete unconsciousness and high temperature of body, in this condition succumbs to death. Attacks of eclampsia are not infrequently the approaching signs of such an epileptic development.

The treatment must, in far the greatest number of cases, be directed to stamping out single attacks. An enema at 73° to 77° F. should immediately be given to the child, followed by a subsequent small cold one at 64° to 68° F. He should then be bathed in water at 93° to 95° F., dabbed gently dry, and have a stimulating body bandage at 77° F., and a stimulating calf pack at 73° to 77° F., applied. Hot bottles rolled up in wet cloth should be placed to his feet, and on the cessation of cramp, a 73° to 77° F. stimulating compress. These should be applied several times, according as circumstances require. Sensible nursing and hardening of the system in early years are recommended as preventive measures. (Refer to "Suckling or Nursing Infants.")

Cramp Cough. (See "Whooping Cough.")

Cramp or Spasms in the Face (Lock-jaw); Cramp of the Masticatory Muscles (Tetanus).—This complaint consists of cramp of the facial masticatory muscles, and is generally the result of a general nervous condition, or of an inflammatory state of the brain, or a complication of an affection in another part of the organisation, as hysteria, epilepsy, tumour in the pericranium, etc. But injuries and diseases of the lower jawbone, toothache, etc., can indirectly occasion it. The pain attacks both sides of the face, and is characterised by the following symptoms:

Involuntary, regular motions of the lower jaw set in rapidly and spasmodically, generally upwards, sometimes sideways, when chattering and grinding of the teeth are distinctly audible. Light injuries to the mucous membrane of the tongue and mouth often result. But not only these symptoms appear, but a tension sets in, when the patient is unable to open his mouth. He has lost the power of separating the upper and lower jaws, and of moving the lower jaw sideways. The power of utterance is also almost entirely prevented, and he can only take nourishment in a liquid form. This painful condition—called lockjaw—may last for days, or even several weeks.

The treatment must be directed to the origin of the seizure. At the earliest symptom of the cramp, apply vapour compresses to the facial muscles, keeping them on five to seven minutes, and changing them six or eight times. Then muffle the lower jaw in thick, stimulating compresses, 73° to 77° F., changing them two or three times, and then again. Apply the vapour compresses, which can be done either

by means of vapour baths for head or face, or by Malten's vapour sprays. Apply massage to the neck two or three times a day. Also foot vapour baths, or leg baths, are useful. In other cases Kneipp's sprays for the back are most helpful. In others, again, Russian vapour baths, in which the spray is brought to bear directly upon the masticatory muscles, or full baths (for some time), 95° F., rising to 106° F., in which the patient holds the lower jaw under water, will alleviate the pain.

Cramp of the Vocal Cavity. (*Rima Glottidis*.)—This is an indisposition which, in consequence of cramp of the muscles surrounding the vocal cavity, may lead to the contraction of the vocal cavity itself, and to difficulty in breathing. The disorder occurs among children, boys forming the majority of the contingent; but it may be met with among adults up to the age of twenty-five, and here women predominate, for it is often a symptom of hysteria. Exciting causes are scrofula, rickets, hereditary nervous troubles, etc. The cramp generally is brought about by chills, defective clothing (the limbs being too-lightly, the body too-heavily clad), diarrhœa, teething, sudden weaning from mother or wet nurse, etc. (Comp. the article "Suckling or Nursing Infants.") The symptoms of cramp are uneasiness, short breath, coughing, gasping for air, dark red or purple face, either closed or rolling far-gazing eyes, irregular pulse, unconsciousness, incontinence of urine, etc. The patient generally has a ghastly appearance. The attack lasts a few seconds only, at most half-a-minute, with irregular intervals. The cramp frequently attacks the body and limbs, and the hands and feet are convulsively contracted.

The treatment of single attacks is as follows: Open the window, and raise the child—take a baby in your arms—open the clothes and sprinkle the face and chest with cold water. (Comp. article on "Fainting.") Tickle the soles of the feet, and do the same to the nasal membrane with a camelhair brush or feather. If the child does not come round, rub the throat and neck. Lay vapour compresses on the chest. To prevent a recurrence of the attack, submit the patient to a moderate wholesome course of life. This may begin by treating the cause of the attack. Never tolerate constipation or cold feet, but obviate them at once by means of enemas and foot vapour baths.

Cranial Nerves. (See "Brain.")

Cross Packs. (See Index.)

Croup. (See Index.)

Croup, Membranous Catarrh.—Formerly identified with diphtheria, or inflammatory bronchitis. Now-a-days the opinion held is, that the difference between the two diseases lies in the former being due to accumulations on the mucous membrane surface of the pharynx, whilst the latter is due to the membrane itself (below the surface) being affected. Both, however, have this in common, that by unskilful treatment the issue may be fatal. Croup generally attacks children, and especially those between the ages of two and eight years. The opportune occasion for outbreak is the presence of foreign poisonous matter in large quantities in the child's system. This being given, a cold; continual respiration through the nose; constant use of too hot food or drink, through which irritation of the pharyngeal mucous membrane is set up, is sufficient to set the disease in motion. On examination, a firmly-seated, yellowish-grey, in the initiatory stage, and in further process of the disease, a loose, detachable skin, is found on the mucous surface of the pharynx, while the whole surface of the pharyngeal cavity is a mass of inflammatory swelling. A precursory stage, lasting generally several days, appears before the outbreak proper, and is characterised by catarrhal symptoms of no great importance, and little heeded, such as slight fever, coughing, trifling pains in the throat, frequent sneezing, etc. The outbreak takes place in the middle of the night. The children wake up frightened, with rough, hoarse, tuneless voice, and coughing in a dry, peculiar, barking manner. They struggle convulsively for breath, throw the head back, toss about in bed. The face is dark red, or a dark blueish red, with an unspeakably anxious expression; the eyes seem to start from their sockets, and the nostrils vibrate violently. The breathing makes a distinctly audible sawing, rattling sound. In many cases they struggle desperately for air at any cost. Sometimes they wish to be out of bed, sometimes in, toss violently about, cling fast to any object, throw their legs and arms about, catch hold of their throat as if wishful to rid themselves of the obstruction inside it. Such an attack generally lasts only a few seconds, but it may extend to one or two minutes. In addition to the frequency of the attacks, their intensity is proportionally increased, and their intermittent pauses become shorter and shorter. An abatement of their intensity takes place generally on the day following, but only to be renewed with increased force in the

succeeding night. Should the little patients not be helped, they gradually become quieter, stunned, dead-sleepy, uninterested in and indifferent to those around them, who mistakenly regard the change as a favourable, critical point—but no so. This condition signifies an excess of carbonic acid in the blood, a carbonic acid poisoning in consequence of the obstructed air passage. Their breathing then becomes feebler and feebler, their bodies cold, their skin takes on a blueish pale colour, great weakness sets in, then collapse, and finally they slumber, to awaken here no more.

In favourable cases, a change for the better takes place on the third or fourth day. The attacks decrease both in frequency and intensity. The dry cough loosens, the coating of the pharyngeal mucous membrane is expectorated, the blue-red colour of the face disappears, the voice gets more melodious, and the fever becomes extinct. With appearances similar to an attack of acute laryngeal catarrh, the recovery is made in about from eight to fourteen days. Genuine croup must be distinguished from false or pseudo croup, already described by me (p. 1176).

The treatment of croup should be as follows:

Whenever such appearances as coughing, tuneless, rough voice, pains in the throat, inflammatory swelling and redness of the pharyngeal mucous membrane, etc., are visible, no time should be lost in settling the diagnosis, but immediate application of stimulating throat packs at 73° to 77° F., stimulating calf packs at 77° F., and, further, body packs at 77° to 81° F. made. These should be changed every two to two-and-a-half hours, or on becoming troublesome or hot. During renewal, the parts of the body covered should be bathed with water at 73° F. To the feet, which generally are icy cold, place a hot water bottle, rolled up in a damp cloth, or, in the course of the day, the little patient should have one or two bed vapour baths (Nos. 3 or 4), together with a subsequent cooling down by a 77° F. complete wash, or a body bath at 81° to 85° F.; or a half-bath at 84° to 87° F. Or, instead, once or twice a day, a half-bath at 85° to 89° F., together with the already prescribed (p. 1176) laryngeal bathing, may be exclusively applied.

The packs for neck, body and calf must not be omitted in the intervals through the day. The fever treatment given in II., Section VI., should be chosen. Further, the children should gargle diligently, with water at 64° to 68° F., to which

some lemon juice has been added; and for the removal of any constipation, an aperient enema at 77° F., together with a subsequent cold small one, at 64° to 68° F., taken every two to three hours. The diet should be plain and simple — lemon squash, apple-pulp, gruel, etc. When the disease is fully developed, the following additions should be made to the above-given prescription, viz., vapour compresses to the neck and chest, which should be used several times a day — say three to six times for each course, changing every eight to ten minutes — and further, together with the compresses, apply thick stimulating breast and neck bandages at 68° to 72° F., and, in threatened loss of strength, artificial nourishment, by administering almond milk enemas.*

In attacks of suffocation, the treatment is similar to that already prescribed (on p. 1177) for the removal of pseudo-croup, or to that (on p. 964) prescribed for diphtheria. For many cases of croup, the treatment prescribed for diphtheria is specially fitting. It must not be forgotten, in the case of cold feet, to have one or more hot water bottles, encased in damp cloths, continually applied to them.

Curvature. (See “Curvature of the Spine.”)

Cuts. (See “Wounds.”)

Cyst, Encysted Tumour. (Tumor Cysticus.) — When a gland which ought naturally to have its outlet in an opening in the skin, through which it excretes fat or tallow-like matters, is stopped up, its waste products accumulate inside, and it increases in size, and takes more or less the external form of a swelling, which becomes visible as a tumour. Such a tumour is called an encysted tumour, because the proper form of the gland becomes more and more lost, and a kind of sack or cyst arises. Sometimes this remains of the same size, and sometimes it becomes continually enlarged. These tumours may appear on various parts of the body, but they are most frequently found on the throat, the face, and the hairy skin of the head. They take their origin in a disturbed condition of the fluids of the body, in disturbances of the circulatory system (the circulation of the blood), or in

* The preparation of almond milk requires the process of maceration (p. 842). Purchase about two dozen of sweet almonds, each one must be tasted before using; skin and mince them very small. Beat up together with about half-a-pint of water, and strain the whole through a clean linen cloth.

maladies of the abdomen, in women's diseases, and such like troubles. The treatment must aim, in the first place, at the removal of the primary disease. Local treatment consists in the application of vapour (vapour compresses, head vapour baths, Kneipp's head vapour bath, Malten's "vapour box"), used alternately with stimulating extra compresses of from 60° to 64° F. The application of massage, in the form of gentle stroking and kneading, is also advisable.

The general treatment consists in strict dietary; in the avoidance of the taking of too many liquids of any kind, and especially in the avoidance of all narcotics and alcoholic drinks, of soups and meat broths; and in the application of whole or three-quarter packs, of swathing the body in warm fomentations with the addition of aromatic herbs; of vapour baths of various kinds, followed by hip baths and trunk baths, or sitz baths, accompanied by friction or ablutions. (See also the history of a case given on p. 249).

Cysticercus Cellulosus. (See "Tape Worm.")

Cysticercus, or Cysticercus Cellulosus, is a technical name for the nodule containing the egg of the tape worm (that is to say, the chain tape worm mentioned under the heading of "Tape Worm" as No. 3, and to which the illustrations, Figs. 408, 409, 410, refer). This is found especially in bacon, and is, strictly speaking, a parasite peculiar to the pig. When the cysticercus cellulosus gets into the human intestines with raw or badly-smoked bacon, its head, which is provided with a kind of wreath of hooked-shaped tentacles, fastens itself on to the wall of the intestines and begins to suck. It throws off the sac in which it is enveloped, produces joints, and becomes a tape-worm.

D.

Day Blindness. (See "Eye, Diseases of the.")

Deaf and Dumb. (See "Ear, Diseases of the.")

Deafness, Hardness of Hearing. (See "Ear, Diseases of the.")

Deafness, Nervous. (See "Ear, Diseases of the.")

Death, Signs of Actual. (See "Cataplexy.")

Debility.—Debility commonly arises in those who have lost much blood, or bodily juices, after feverish diseases of long duration, in the course of chronic disease, in which,

in consequence of disturbances of the digestive organs, the nourishment that is taken has not been sufficiently assimilated, and in consequence has not sufficiently nourished the system, or it may arise from many other causes. For its cure it usually requires only rest, fresh air, care of the skin, and easily-digested food. The care of the skin is accomplished by moderately warm baths, or by mild complete washings of the body, at from 82° to 86° F. The diet should consist in the partaking of young vegetables, potatoes boiled in their skins, mashed potatoes, oats and barley, rice broths, milk and egg puddings, stewed fruit, and lean meat dishes. Fat or seasoned meat, beer, wine, coffee, tea, etc., are, as a rule, to be avoided. (Compare article "Lassitude.")

Debility, General. (See "Exhaustion.")

Debility in Men. (See "Weakness in Men.")

Decoction. (See "Boiling Down.")

Defæcation (The act of going to stool). (See "Diarrhœa.")

Delirium Tremens.—These symptoms are given in the article headed "Alcohol."

The treatment is that already given for "Fevers," II. Part VI. Half-baths, 90° F., gradually cooled down to 81° F., lasting five to ten minutes, connected with affusions to the neck; soothing whole packs (77° to 81° F.), stimulant packs on the body, legs and calves (72° to 77° F.); enemas (72° to 77° F.), followed by a small cold one (63° to 68° F.), and soothing head compresses (68° to 73° F.), are the water applications best suited to the case.

Dentition in Children.—The time of dentition is one of the greatest importance, for at this period children very often suffer with troubles of various kinds which are connected with the process of teething. The complaints, however, are not generally dangerous, even when accompanied by fever. All the more serious and dangerous complaints in teething children, such as inflammation of the lungs, convulsions, etc., are generally caused through an improper diet, colds, etc. The usual symptoms during dentition are as follows: Great restlessness, sudden crying, red spots, and sometimes an eruption on the cheeks; red, hot, swollen gums; excessive secretion of saliva and itching in the mouth. The child will, at the beginning of the dentition, put his hand to his mouth to lessen the itching, but as the teething progresses he will put his hand to his gums. When the child

swallows a quantity of the plentifully-secreted saliva, together with some decomposing products of the mouth, catarrhal affections of the stomach and intestines set in. These affections are more likely to set in if the child is weaned while the process of teething is going on. (Comp. "Suckling Infants.") When the nervous system is greatly irritated, convulsions are frequently the result. In many cases, when the pulmonary organs of the child have not received proper care during teething, they become affected and inflamed (inflammation of the lungs, of the bronchial tubes, and of the larynx). Catarrh of the eyes also often occurs when the eye-teeth are coming through. (Comp. the article "Teeth.") When the teeth cut through the gums very late, it is a sign that the bones are not growing properly, and the child will be liable to be affected with rickets. Children who suffer from hereditary syphilis will have badly-coloured teeth, that become prematurely hollow and loose. Dentition is but natural; and treatment, as usually understood, during the first teething, is out of the question.

A child properly fed and nursed, and treated on natural principles, gets through teething without much trouble. (See "Suckling Infants.") For inflammation of the gums, and to prevent the irritation, the child's mouth should be washed frequently with a wet piece of linen, and have a stale crust to bite. Complications should be treated according to the symptoms already discussed. ("Catarrh of the Mouth.")

Diabetes Insipidus.—Simple diabetes is a disease which makes itself apparent by an abnormal, unquenchable thirst, together with an unusual and increased passing of urine. It is distinguishable from diabetes mellitus (see this) by the absence of grape sugar in the urine. Men suffer from it more frequently than women, boys than girls. The actual cause of simple diabetes has not been discovered. Meantime the connection of the symptoms of sufferers with previous injuries to the skull, or with chronic brain trouble, offers some clue in this respect. The amount of urine passed daily varies between eight to twelve pints, but cases have been known where it was as great as forty pints. The colour is clear as water. The thirst, as I have already said, is greatly increased. The skin is dry and hard, appetite and relief of the bowels are normal. The course of the disease is extremely slow. The suffering lasts for years, even for decades.

The treatment is found in the General Rules, and consists mainly of massage of the body, tepid baths, and low diet.

Diabetes Mellitus is a chronic digestive complaint, resulting from a poor state of the blood. This possesses an unusual amount of saccharine, and discharges from the body, especially the urine, become impregnated with sugar. The sugar taken into the system by food does not become (by combustion), as usual, carbonic acid and water, nor does it warm the body, because only a stage in the oxidation of food is carried out, i.e., the production of sugar in the blood and tissues. Causes of diabetes are intemperance, insufficient variety of food, nourishment of too rich a kind, indigestion of all kinds, especially disorders of the liver and the pancreas; infectious and other illnesses, scarlatina, typhus, syphilis, etc.; wounds with nervous affection, hereditary predisposition to gout, corpulence, etc. Men suffer more from it than women, often at the age of forty-five to sixty. Premonitory symptoms are indigestion, abnormal appetite or none at all, acidity, sickness, constipation, etc., as well as congestion of the head, headache, dizziness, dim sight, skin irritation, powerlessness, and other subjective symptoms. Ravenous hunger and great thirst come on later; the patients dispose of incredible quantities, and then are not satisfied, nor do they increase in weight, but grow thin. The thirst is insatiable. Sometimes, after a heavy meal, all sorts of beverages are drunk without assuaging it at all. The tongue is dry and furred, often rough and swollen. The saliva diminishes in quantity, and its reaction is acid, and sometimes the breath is offensive. The teeth decay and loosen, the gums are swollen and bleed easily. Constipation may be expected, and the evacuations are hard and dry. The skin is dry and dull, and very irritable, especially in women. Boils form, develop into carbuncles, show a tendency to mortify, and destroy the swollen skin. Besides these cutaneous troubles, there is one that seizes the limbs (erysipelas of the skin) and exposes the muscles. Perspiration is seldom seen, but, when present, contains sugar. The pulmonary organs become diseased, and consumption and inflammation of the lungs result; the nerves are affected by neuralgia and troubles peculiar to this complaint, and the senses participate in the disorder, sight and hearing becoming affected. Men frequently suffer from phimosis, and swellings and roughness of the gland, and

women are subject to abscesses in the private parts. The urine is transparent, bright, light green, frothy, and leaves no sediment. The smell is either sweetish or acid, and sometimes aromatic. The reaction is always acid (when chemically tested), and the quantity very great. Instead of a pint or two in the twenty-four hours, five to twelve pints are voided. Analysis shows a large proportion of sugar, from a half to fourteen per cent. Physical motion tends to diminish the quantity of sugar, but mental emotion increases it. Albumen exists in very small quantities, but is frequently absent. Urinary disorders often irritate the bladder, but inflammation of the kidneys only sets in after a protracted case. The health suffers by emaciation, general weakness, and general lapse of the mental and physical powers. The duration varies greatly, it may be two or three years, or from ten to fifteen years. Death ensues from wasting, mortification, pyæmia, uræmia, or consumption. Coma diabeticum is a fatal but not frequent symptom. It results in fainting fits, collapse, and respiratory troubles, great nervousness, delirium, etc. The temperature falls below 70° F.; the pulse weakens, is small and quick; the breathing is laboured, and the patient dies in a few days, without regaining consciousness.

The treatment consists in adopting the "General Strengthening Treatment." Take a sponge bath every morning, 77° to 82° F., following it up by gentle friction; a daily bath (tepid), or every other day, for ten or fifteen minutes. Administer enemata daily or twice a day (72° to 77° F.), and a small cold one afterwards (63° to 68° F.). Strong persons may add one or two bed vapour baths a week, No. 2 or 3. Air and sun baths should not be forgotten in the summer. Massage of the body (p. 674) and the following passive motions (Figs. 199 to 204), once or twice a week, are also beneficial. Boils, carbuncles, mortification, necessitate local treatment. (See "Wounds.") Coma diabeticum should be treated with full baths, increasing from 92° to 95° F., followed by a dry pack. Apply continually enemata 72° to 77° F., followed by a small cold one at 63° F. Diet is an important feature, from which foods containing starch should be excluded. Four or six carrots, two or three stale crusts, may be eaten during the day, especially at meals; but cereals, as oats, barley, rice, tapioca, etc., if prepared as described (p. 17), are not altogether forbidden. Green vegetables

(asparagus, cauliflower, dandelion, cabbages, beans, artichokes, etc.), cabbages and herbs, salads (prepared with olive oil and lemon juice), ripe, raw fruit, every sort of fruit preserve (without sugar), cocoa, sour milk, etc. Beverages: Lemon juice, or any unsweetened juice, mixed with water; unsweetened wine, almond milk, etc. Only the lean of meat should be eaten. All kinds of fish, and eggs, however cooked, are quite harmless. It should be borne in mind that rich food and strong drink nourish the disease, and temperance acts against it. So now the patient knows what he may or may not do.

Diabetes. (See "Diabetes Mellitus.")

Diagnosis. (See Index.)

Diaphragm. (See "Lungs" and "Windpipe.")

Diaphragm, Cramp of the (clonic) is characterised by sudden, swift spasms of the diaphragm, when the inhaled air forces its way noisily into the respiratory channels, and is then forced out through the vocal tubes. By this hiccough is caused, accompanied by shortness of breath, stomach and backache. The root of the matter is in the nervous centres, and hiccough is often an accompanying symptom of such diseases as are seated in the central organs, the brain and spinal cord, or are sympathetically affected by remote disorders. Anæmia, pallor, hysteria, hypochondria, certain forms of diseases of the brain and spinal cord, intermittent fever, cholera, etc., are often accompanied by it. It is often occasioned reflectively by disorders of the stomach, bowels, liver, kidneys, the womb, dilatation of the aorta, inflammatory affections of the cardiac membranes, and those of the chest and body; when hiccough comes on, it can only be cured by treatment of the fundamental cause. For single attacks take a bath (92° to 106° F.), remain in it some time, or, instead, have chair vapour baths, bed vapour baths (No. 1 to 3), or lay vapour compresses on the chest and neck. Massage of these parts is also beneficial.

Cramp of the diaphragm (tonic) is always a dangerous condition, if caused by irritation of the nervous centre as in epilepsy, lockjaw, etc. The unusually laboured breathing is carried on by the upper part of the chest, and the lower part is greatly arched and is incapable of doing its part. No movement of the diaphragm can be detected by touch; the pulse is low and rapid; the skin of the upper part of the body is cold, pale, or bluish. The treatment must be applied to the

relaxing of the muscles and the prevention of suffocation, by laying vapour compresses on the lower part of the chest, and on the corresponding part of the back. The compresses should be kept on for eight or ten minutes, and should be six or eight in succession. Even more beneficial are body baths at 92° to 106° F., taken for some time.

Paralysis of the diaphragm is either isolated, or may occur in connection with further mischief. The symptoms are mainly a change in the breathing function; the upper part of the chest only acts, the lower part remaining quite motionless, and instead of expanding at each inspiration sometimes contracts. Climbing hills and going upstairs, lifting loads and continuous speaking, often cause, more or less, asthma or respiratory troubles.

The treatment must be applied to the main cause. Locally, apply sitz or body baths (86° to 90° F.), and daily massage of chest, back, or body; and in connection with the last use the passive gymnastic exercises depicted in Figs. 199 to 204.

Diarrhœa, Purging.—By diarrhœa is understood a fluid, pappy and frequent evacuation of the bowels. With these evacuations are often mixed hard, lumpy masses of excrement, or the undigested remnants of food which have a very bad odour. When in the case of infants undigested milk comes away in the form of cheesy flakes, it implies a very high degree of weakness of the digestion, and the food must be immediately changed. Evacuations of pure blood result from hemorrhoidal maladies (piles). Liquid motions, streaked with red, indicate dysentery. Black, tar-like motions indicate ulceration or abscess in the stomach. Brown, chocolate-coloured diarrhœa indicates consumption of the intestine, or typhus. One should in general regard diarrhœa as one of the means which nature takes to help us to rid the system of disease-causing materials and foreign substances, or poisons that have taken their origin in one's own body, and one should not, therefore, take immediate steps to suppress the diarrhœa itself with constipating or binding medicines. Persons who have a tendency to diarrhœa must avoid indigestible and highly-spiced dishes, cold drinks (such as beer cooled with ice, etc.), draughty water closets, cold feet or abdomen, and should harden themselves with barefoot walking, the wearing of sandals, light and air baths and sun baths. For the rest the cure of diarrhœa must be undertaken by means of the

same treatment that is recommended in cases of acute catarrh of the intestine (see under this head).*

Diarrhœa, Accompanied by Vomiting. (See "Cholera Nostras of Children.")

Diarrhœa, Infantile. (See "Cholera Nostras of Children.")

Diarrhœa, the Vomiting, of Adults. (See "Cholera.")

Diet, Mixed. — By this term we understand those articles of food destined for man's use, some of which are derived from the animal, some from the vegetable, kingdom. The greater part of the present race subsists on a mixed diet. Without in any way withdrawing from the opinion expressed in Chapter I., Vol. I., of this book, against the exclusive and continual use of animal food as presumably our (sole) nourishment, I must here emphatically state that there are certain conditions of the organisation in which a pure vegetarian diet would be injurious. The cultured man, whose organisation, in consequence of the mixed diet of his ancestors, and subsequently of his own food from infancy, being based on a mixed diet, would undergo considerable disturbance, physiologically speaking, were he at once to adopt a pure vegetarian regimen. If, as is undoubtedly the case, such a diet is the only natural one, yet the digestive organs of the nineteenth century man are only adapted to a mixed diet, the juices and the stationary parts of the living frame are only suitable for the assimilation of the extracted food from a mixture, and any change in the ordinary regimen must involve a certain reaction in the organisation. Where the adoption of a vegetable diet is not included in the prescribed treatment of certain disorders, the convalescent will act most judiciously, as regards his general wellbeing, if he eats both animal and vegetable food in due proportions, giving vegetable food the prominence, and regarding meat only as an adjunct in the mixed diet. Certain disorders necessitate the exclusive use of vegetable food, and in describing these in this book emphasis will be laid on this point.

* The Californian gold miners make use of the following simple remedy in cases of diarrhœa: In a glass of fresh water mix so much wheatmeal as will give the mixture the consistency of cream. Of this some is taken every time one feels thirsty during the day. It is said to be seldom necessary to use the remedy on the second day.

Diet, Non-stimulating. — By a non-stimulating diet we understand the abstention from all foods that are rich or highly-seasoned, also from food which irritates the mucous membrane of the stomach and intestinal canal, and vitiates the vascular and nervous system. Very acid, salted, highly-seasoned or fat food, alcoholic and narcotic drinks, such as wine, beer, brandy, coffee and tea, are naturally excluded from a non-stimulating diet. Meat must also be considered as an irritant, although, when lean, it is admitted into dietetic cookery.

Diet in Disease. (See Index.)

Dietary. (See Index.)

Digestion of Food, Table Relating to. — The nutritive value of food generally depends on its nutritive contents, which enhance its value according to its proportional parts. Substances of nutrition can only be serviceable to our bodies when the nutritive contents have been thoroughly digested, and the residue distributed throughout the blood. Nutritive value is always proportional to degree of digestibility. The quicker the process of transformation into juice, and distribution into the blood, the easier the digestive properties of the food matter. In many cases, time occupied in digestion depends on the manner and way of its preparation and use. The following is a time-table of different foods:

One hour for digestion:

Boiled rice; it is the most easily-digested of all boiled foods.

One-and-a-half hours for digestion:

Whipped eggs, barley gruel, roast game, lightly-boiled apples and pears, apple pulp, salmon and trout, spinach, asparagus, celery, pea and bean soup, barley, groats.

One-and-three-quarter hours:

Boiled beans, sago.

Two hours:

Boiled milk, raw eggs, cooked barley, roast ox liver, cooked sour apples, boiled cod-fish.

Two-and-a-half hours:

Fish, uncooked milk, boiled turkey.

Two-and-a-half hours:

Roast turkey, roast wild goose, lamb, roast sucking pig, fried potatoes, large beans, peas, lentils.

Two-and-three-quarter hours :

Milk and egg pudding, chicken, tender roast beef, fricassee, oysters.

Three hours :

Soft-boiled eggs, stewed mutton, raw ham, roast (lean) beef, fried perch, fried turbot, cake.

Three-and-a-quarter hours :

Roast beef, boiled carrots, salad, cabbage.

Three-and-a-half hours :

Roast pork, freshly-salted pork, fried or melted butter, hard boiled eggs, old cheese, fried sausages, boiled beef, boiled potatoes, boiled turnips, mutton broth, new wheaten bread, boiled (white) cabbage, boiled horseradish, boiled onions.

Three-and-three-quarter hours :

Fat boiled beef, bread and butter with coffee.

Four hours :

Roast and boiled poultry, roast mutton, roast veal, broth, salted salmon, dry bread and coffee.

Four-and-a-quarter hours :

Game, pork boiled with vegetables.

Four-and-a-half hours :

Boiled tender mutton, freshly-salted pickled meat.

Five hours :

Very hard-boiled eggs, smoked sausage, tough veal, roast cold mutton, boiled tendons, skin, intestines, ox fat, cherries, plums, raisins, almonds, mushrooms, nuts, fruit skins.

Six hours :

Pickled meat.

Digestion, Organs of, or Digestion.—All the food or nourishment that is taken into the body through the mouth undergoes a change, and the duty that digestion has to perform is to bring about the assimilation of food. The waste matter, or excrement that leaves the body daily, must therefore be made up again by the nourishment that is taken into the body, and at the same time the body must select the properties contained in the food that are necessary for the formation of blood. But these substances can only be admitted into the humours of the body when they are in a state of solution, and this solution is caused by the humours of the digestive organs,

which consist of saliva, gastric juice, bile, intestinal mucus, etc. (all produced in certain glands of the body). All the organs that take part in the process of digestion are included in the organs of digestion, and the whole may be called the "digestive apparatus." The whole digestive apparatus represents a channel that commences at the mouth and ends at the end of the rectum (or large intestine). The digestive channel is lined inside with a very vascular mucous membrane, and provided with muscles that are for the most part involuntary (p. 1241). It is the latter that force the contents of

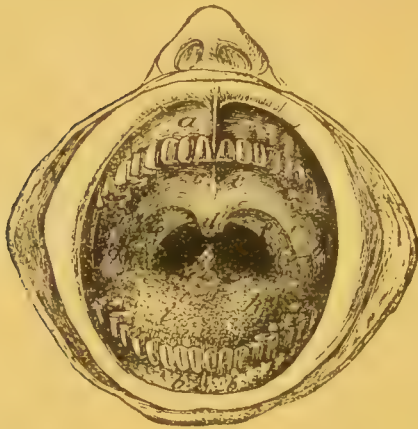


Fig. 363. The Mouth.

a. The upper jaw. b. The lower jaw. c. The palate. d. The fleshy knots. e. The anterior arch of the palate. f. The posterior arch of the palate. g. The amygdalæ. h. The narrow part of the pharynx (behind which is situated the œsophagus). i. The cover of the larynx (epiglottis). k. The tongue.

the digestive channel further, step by step. Digestion is divided into four stages, which are: Firstly, the stage of pre-digestion; Secondly, the stage of digestion in the stomach; Thirdly, the stage of digestion in the thin intestine; Fourthly, the stage of digestion in the thick intestine (or post-digestion).

The pre-digestion begins when the food and liquids enter the mouth (Fig. 363). The liquid food and drink is immediately mixed with the saliva in the mouth, swallowed, and thus brought into the stomach, while the harder morsels require chewing first. Chewing

is brought about by the aid of the masticatory muscles (Fig. 389, 12) between the upper and lower jaws and teeth (Fig. 363a). While the chewing process is going on, the three pairs of salivary glands that are situated at the bottom of the mouth (on both sides) secrete a watery fluid, having alkaline properties, which is called saliva. Saliva not only softens and moistens the food that is chewed, it also has the properties of changing the starch contained in vegetable substances into sugar and dextrin (a gummy, starchy matter). (See p. 44.) After being mixed with saliva, the food is brought by the aid of the tongue (Fig. 363 k) against the hard part of the palate (Fig. 363 c), which imparts the sense of taste; it is then brought against the soft part of the palate

with the fleshy knots (Fig. 363 d), passes under the two arches of the palate (Fig. 363 e and f), then between the two amygdalæ (little kernels on each side of the throat, see Fig. 363 g) into the pharynx (Fig. 363 h). After the food has passed the root of the tongue, it passes the curtain-like membrane at the end of the palate (where the nasal opening is situated); then it passes over the cover of the larynx (Fig. 363 i), falling afterwards into the pharynx, and from thence into the gullet (œsophagus). The duty that the cover of the larynx (epiglottis) has to fulfil is that of closing the opening to the larynx when food is swallowed, so that the food should not go the wrong way, that is to say, that it should not fall into the larynx.

As soon as the food enters the gullet (Fig. 364 m) it is gradually drawn down into the stomach, partly by its weight, but mostly through the peristaltic contraction of this tube. The gullet commences at the neck, and runs behind the trachea and past the heart and lungs through an opening in the diaphragm (Fig. 1 b) into the stomach (Fig. 1 c and 402). When the food has reached the stomach the pre-digestion is ended, and now commences the digestion in the stomach, about which more particulars are given in the article entitled "Stomach." After the digestion in the stomach, the digestion in the thin intestine commences. The thin intestine (Fig. 1 m), which secretes mucus and intestinal juice, is divided into two parts, the upper part being called the duodenum (Fig. 1 g), into

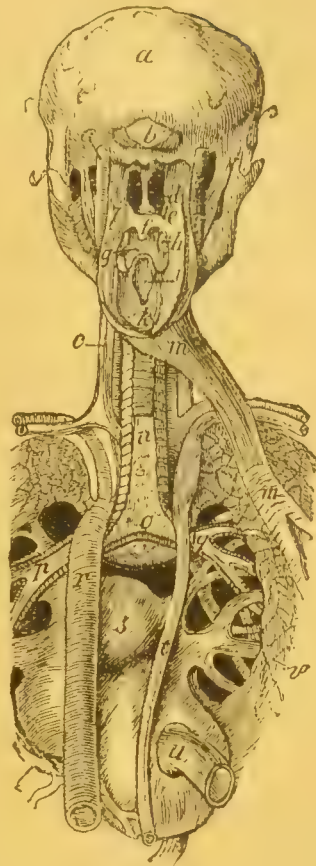


Fig. 364. The entrance to the Pharynx, the Œsophagus and the Larynx (back view).

- a. The back of the skull, or cranium. b. The large hole at the back of the cranium. c. The artery of the head. d. The back of the nasal cavity. e. The wall of the nasal cavity. f. The fleshy knot of the soft part of the palate. g. The tongue (as seen through opening at the beginning of the pharynx). h. The amygdalæ. i. The cover of the larynx (closed over the entrance to the larynx k). l. The wall of the pharynx. m. The œsophagus. n. The trachea. o. The trachea where it is divided into two branches—the right branch (o) and the left branch (p). r. The (aorta) principal artery of the body (thoracic portion). s. The heart. t. Vena Azygos. u. The inferior vena cava. v. The lungs.

which two liquids flow, that, in conjunction with the intestinal mucus, assist in the further digestion of the chyme, as the food is now called. One of these liquids is bile, that is secreted by the liver (Fig. 1 h and i) and by the biliary vessels (Fig. 1 k). This liquid passes through the biliary duct (Fig. 1), and then through the hepatic duct, and afterwards into the duodenum.

The other liquid is the pancreatic juice (pancreas), situated behind the stomach between the spleen (Fig. 1 y) and the duodenum. The second portion of the thin intestine is called



Fig. 365. Section of the intestinal villi (greatly magnified).

the jejunum, and the third part the ileum. Both of these intestines bend up and down in a serpentine manner in the middle of the abdomen, until the ileum finally enters the large intestine. The spot where these intestines thus unite is situated on the right side of the hypogastric region. With the help of the bile, the pancreatic juice and the intestinal mucus, the chyme, which is gradually acquiring alkaline properties, and which is slowly pushed on by the peristaltic movement of the intestines, undergoes the following change: The albuminous parts that the bitter gastric juice could not dissolve are liquefied by the aid of the intestinal mucus and the pancreatic juice.

Fats and sugary substances are, likewise, not changed by the gastric juice. Fatty substances are therefore first changed in the small intestines, by the aid of the bile, the intestinal mucus and the pancreatic juice, into a fluid called chyle, which afterwards passes into the thin vessels of the intestinal villi, in order to be absorbed. Any starchy matter which may still be present in the chyme is transformed into sugar through the influence of the pancreatic juice, which possesses the qualities of changing starch into sugar to a still greater degree than the saliva of the mouth. We will now mention three other important uses of bile. Physiology teaches us that, firstly, it helps to digest the fats which are present in the chyme, and which have not been affected by the gastric juice; secondly, it stimulates the intestine, so that it may perform its peristaltic motion; and, thirdly, it prevents decomposition of the contents of the in-

testine, like an antiseptic fluid would do. In the second half of the small intestine the contents are alkaline, and it is here that a part of the fatty substances are changed into fatty acids and glycerine, with the help of the pancreatic juice. The fatty acids unite with the alkali, the result of this combination being an emulsion that is somewhat like soft soap, which helps to form chyle out of fatty substances. A great part of the chyme (the better and more soluble part) has been liquefied. It now becomes chyle, and is absorbed by the lymphatic vessels inside the thin intestine, after which it is passed into the mesenteric glands, and from thence into the thoracic duct (Fig. 345m), whence it passes into the blood. The intestinal villi are the real organs of absorption inside the thin intestine (Fig. 365); they give the membrane of the thin intestine a velvety appearance, and, together with the countless number of glandules situated in the mucous membrane of the intestines, greatly increase its surface. The intestinal villi, besides consisting of organic muscular fibres, are plentifully provided with blood vessels and lymphatic vessels.

They are, to a certain degree, the continuation of the mucous membrane of the thin intestine, and the amount of these intestinal villi is estimated to be from three to four millions. The outer covering of one of these villi, that are somewhat like a tiny gutta-percha cap in appearance, forms a layer of cylinder-shaped cells. In the inside of the villi are hollow spaces (the so-called lymphatic spaces). The wider villi have several of these lymphatic spaces, that communicate with each other. The fluid, nourishing constituents of the chyle penetrate into the cylinder cells, and thus get into the lymphatic spaces. When these are filled the organic muscular fibres contract, in consequence of the irritation caused through the filling, and as the muscular fibres contract they press the contents into the lymphatic vessels that are imbedded in the layer of muscles of the intestine. The lymphatic vessels then transfer their contents to the blood in the manner we have already described. The further the chyme moves down in the thin intestine, the quicker does the absorption of the fluid chyle take place, by means of the absorbent vessels. It is in this manner that the firm and useless part of the chyme finally reaches the large intestine, when the "digestion in the large intestine, or post-digestion" begins; the remainder of the chyme assumes the constituents of excrement.

The large intestine (for the junction of the large and small intestine, look at Fig. 1 n) commences at the bottom, at the right side of the region of the abdomen, with the cœcum (Fig. 1 o), on which is a worm-like appendage, the so-called vermiform appendix (Fig. 1 p). The large intestine is now called the colon (Fig. 1 q), and runs on the right side, in an upward direction, till it reaches the liver. It subsequently receives the name of transverse colon (Fig. 1 s), running under the stomach in a slanting direction till it reaches the spleen (Fig. 1 y), after which it is called the descending colon (Fig. 1 u), and runs toward the left side of the abdomen, until at last it bends like the letter S, and enters the rectum (Fig. 1 v), which ends at the anus. In the hollow of the bony cavity, in front of the rectum, lies the urinary bladder (Fig. 1 w), which is a bag about five inches in length and about four inches in width. (Comp. the article entitled "Kidneys.")

It is inside the large intestine that the absorption of the water, and the condensation of the contents which will afterwards be passed as excrement, takes place. The excrement consists partly of the insoluble constituents of the food which was partaken of, as they give no nutriment, and partly of soluble constituents that are undigested, as well as of intestinal mucus and decomposed bile.

Digestion, Weakness of; Dyspepsia. — People suffer from dyspepsia when the digestion is disturbed, which may be caused through an insufficiency, or faulty secretion, of the gastric juice, and also through an inactivity of the stomach while digestion is proceeding. Weakness of digestion is therefore not a symptom of an organic disease of the stomach, or the consequence of changes in the structure of the same, but results, as we will repeat again, either through the gastric juice being insufficient in quantity, or not properly mixed, or through the peristaltic movements of the stomach during the process of digestion being too weak. Therefore, when there is weakness of digestion, as a rule only a very small quantity of digestible food is digested, and as soon as much indigestible food is partaken of, varied symptoms appear. The causes of weakness of digestion are not situated in the stomach itself, but in other parts of the organism where there is something at fault, and, as a rule, dyspepsia is the cause of a disordered nervous system. It is a fact that the latter-day civilization has brought in its train a great

many dyspeptics, a large contingent of them being persons affected with some nervous trouble, such as neurasthenia, hypochondriasis, hysteria, etc. A great deal of dyspepsia is also brought on through other disorders which weaken the system, such as chlorosis, anæmia, diseases of women, and through other weakening effects, such as licentiousness, nicotine poisoning, taking drugs, or alcohol, etc.

In order to effect a cure, one should, above all, first try to get rid of the cause of the trouble. In cases where one is doubtful as to the cause of the trouble, one should use the General Strengthening Treatment. (Comp. also the article, "Stomach, Nervous Derangement of the.")

Digestive Disturbance. — There is probably not one morbid affection of the organism with which the digestion does not sympathise. Many distant pathological conditions, or functional disorders of the body, affect the digestive system, having been transmitted there by the nervous system. It is quite incorrect therefore, when there is a disturbance of the digestive organs occasioning pains in the stomach, oppression in the stomach, belching, a desire to vomit, constipation, diarrhœa and colic, etc., always to look for the cause of all this in the digestion itself. The disturbance of the digestive organs is often caused through an acute approaching illness, a fever, some deep chronic complaint, a disordered state of the nerves, etc. On the other hand, errors in diet have often caused derangement of the digestive system without any morbid signs being noticeable in the digestive organs. These morbid signs are then observed in distant organs of the body, such as headache, nettle rash, etc. It is therefore not advisable in every case of indigestion to put the digestive system under treatment, neither is it advisable to excite the digestion by means of various stimulant medicines. The best thing one can do when suffering from indigestion is to have regular habits, and in case the digestion does not then become strong, after some time to put the digestive system under treatment.

Diphtheria. — Diphtheria is one of the most dangerous, widely-spread and most infectious diseases. The extraordinary mortality among diphtheria patients, the obvious futility of all medical remedies, and the frequency of this disease in all sections of society, in the cottage and in the palace alike, among poor and rich, among high and low, stamps diphtheria as one of the most avenging angels of the present generation.

Diphtheria is found inland and on the seacoast; on the tops of mountains and deep down in valleys; in well-wooded districts with sandy soil, as well as in swampy low-lying districts; in villages and in towns. It carries off old and young alike, strong and weak. Naturally, then, terror seizes parents when a child is attacked by this disease, and also the drug-loving physician who stands, helpless and unable to give relief, by the bedside.

Diphtheria is no mere local complain. It is not only a throat trouble, but represents a disease of the whole organism, although the peculiar inflammatory process of the mucous membrane of the pharynx, in which a soft, loose, decomposing, putrid, and gangrenous "false membrane" is formed, which rapidly attacks the neighbouring mucous membrane. For instance, those of the larynx, the nose, etc., have given rise to the mistaken popular belief that the disease is usually a purely local one. The diphtheritic deposit or coating spreads, in its extension, not only over the pharyngeal nasal and laryngeal mucous membrane, but also over the mucous membrane of the Œsophagus, of the stomach and of the intestine, a fact which can be recognised from the repeated vomiting, or the obstinate diarrhœa, which then contains masses of foul-smelling products of diphtheritic decomposition. Diphtheria arises either independently as a primary disease, or associated with and as a result following upon such other diseases as whooping cough, scarlet fever, measles, and smallpox.

The incubation (the slumbering condition), which lasts, as a rule, from two to five days, during which time the patient complains of hot head, cold hands and feet, loss of appetite, depression of spirits, loss of interest in everything, shivering fits alternating with great heat, etc. This is accompanied by a general feeling of ill-health, with difficulty in swallowing, pain in speaking — pains which extend to the ears; there arises swelling and vivid reddening of the tonsils and the uvula, on which there is then formed a greenish yellow coating, accompanied by an extremely evil smell from the mouth. The extension of this yellowish coating is subject to the greatest fluctuations. Sometimes one only finds it on the tonsils, sometimes on the soft palate and the uvula. If one wipes it away with the finger wrapped in a linen rag, a slight depression is formed, which is, however, shortly again covered with the coating. If the inflammatory process in this stage is not checked by proper treatment, then it goes continually

deeper, and there arises on the affected parts a brownish, smeary, pappy, gangrenous mass, with a very penetrating smell, which can no longer be wiped off, and which bleeds when one makes the attempt. Occasionally this comes to a gangrenous mortification or perforation through the soft palate and the uvula. In consequence of the swelling of the glands the patient is only able to move his head with very great pain. Further symptoms, which show disturbance of the general health, are generally: Fever, rising to 104° F.; restlessness, accelerated or slowed, and sometimes excessively weak pulse beat; vomiting, loss of appetite, difficulty in swallowing, etc. When the disease runs a favourable course, its duration may be reckoned at from one week to a week and a quarter. When in the normal course, or as the result of proper treatment, sweating sets in on the fourth or fifth day of the disease, and then all further danger is at an end.

Great anxiety, however, should be felt in those cases where the diphtheritic process has extended to the mucous membrane of the nose and the larynx. When the mucous membrane of the nose is affected, there is, as a rule, an evil-smelling purulent discharge from the nose. Especially to be feared, however, is the inflammation of the mucous membrane of the larynx, since, on account of the narrowness of the larynx in children, the rima glottidis (voice cleft) becomes stopped up through the swelling, the inflammation and the deposit, so that suffocation and choking may be brought about. That form of diphtheria known as descending diphtheria, produces, in the first place, a nasal and hoarse speech, a peculiar rough and bellowing cough, as well as a sawing sound in the breathing. All food that is partaken of is rejected through the mouth or the nose, or desperate craving for air sets in, which, if not relieved at this point by some means, causes suffocation. This takes place with slight convulsions, apathy, bleeding of the nose, etc., in consequence of blood poisoning with carbonic acid gas. If cure follows, then the gangrenous deposit is partly coughed up, and partly passes away with the evacuation of the bowels. Convalescence sets in gradually and slowly. As the sequelæ of a bad attack that has been overcome, one often finds poverty of the blood and paralytic conditions of various kinds.

The treatment of diphtheria consists of the following measures: If local processes in the pharynx are not yet present, then the patient should be given either a reclining vapour

bath No. 3, or a complete or three-quarter pack, both at the temperature of from 73° to 77° F., in combination with subsequent complete washings of the body at from 77° to 81° F. One should adopt that form of fever treatment which seems best suitable to the special feverish symptoms and the general symptoms. (See Part II., Section 6.) Also at this stage give the patient daily several laxative enemata of from about a half to three-quarters of a pint of water, and at a temperature of from 73° to 77° F., in combination with subsequent small cold enemata at 66° F. (Half a wine-glassful of water.) By this means very often whole masses of diphtheritic deposit are removed from the intestinal canal.

If, however, the diphtheritic coating or deposit in the throat and the mucous membrane of the pharynx is already present, of which one can convince oneself by ocular investigation,* then adopt the following local procedure: The patient must gargle every hour with water at from 66° to 68° F., and it is advantageous to mix a little freshly-squeezed lemon juice with the water. The water used for gargling must, however, only taste very slightly acid. If the gargling causes pain, then either give pharyngeal baths (mouth baths) with a small ball syringe, filled with water or lemon water at 72° F., every hour; then stimulating throat fomentations at from 68° to 72° F. should be applied, and renewed every half-hour, and should, when the inflammation is diminished, only be applied every two to two hours and a half, and at a temperature of from 77° to 81° F. The nose should be sponged out carefully every day two or three times with a piece of moistened surgical dressing, or should be syringed with a mixture of water and lemon juice. For the general treatment there should be given, in proportion to the extent of fever, soothing trunk packs at from 73° to 77° F., of a duration of half-an-hour to two hours, together with stimulating calf packs at

* In view of the frequent occurrence of diphtheritic disease, one should on every occasion of children being unwell, examine the throat. If the children will not, by means of gentle persuasion, allow the mouth to be opened for the purpose of examination, then one should shortly and resolutely hold the nose when they, in order to be able to breathe, are compelled to open the mouth; then put a wooden handle of a knife or fork between the teeth, press down the tongue with the handle of a spoon, at the same time asking elder children to say "Ah." By this means one is able easily to make an ocular inspection of the pharyngeal cavity.

73° F., in combination with subsequent washings of the whole body, or whole, three-quarter, or half packs, reclining vapour baths Nos. 1, 2, 3, or 4, sitz baths or trunk baths, or friction sitz baths or hip baths, etc. One should then adopt the one or the other curative procedures, twice, or at the most three times a day, and remember that everything that is too much is injurious. At night the patient should be given a stimulating abdominal fomentation at 77° F., and calf packs at 73° F. In cases of very great fever, trunk packs should be applied through the night. At the same time there should be given during the day frequent laxative and small cold enemas.

If, however, the suffocation stage of the disease has set in, and "Science" knows of no other remedial measure than tracheotomy (that is, making an incision or cutting in the trachea or air tube), one should attempt to rescue the child in another manner, in the same way as in the case of cholera (in the declining stage), viz., apply cold in the most "heroic form." One should give the child quickly a cane chair-vapour bath on three or four chairs, or a Kuhne's vapour bath apparatus, and then a shower bath, especially directed on the throat, the nape of the neck and the back, at the same time continuously rubbing the nape of the neck and the throat with the bare hand, and one should then at once put the child into a dry pack. If the child then obtains air, he should be allowed to lie in the dry pack until restlessness again sets in. Then he should be washed with water at from 73° to 77° F., and use should be made of the mild treatment described above, until complete cure. In cases of very great danger one should at once pour the coldest obtainable water over the chest, back, and nape of the neck of the child in a continuous stream, without waiting for the preliminary vapour baths, and the water should be poured from a moderate height. During the whole time that the shower bath is going on, the skin of the parts on which the water is being poured should be continuously rubbed with the bare hand. As soon as the child coughs and throws up mucus it is saved. It is then to be placed, without drying, in a dry pack; also laxative enemas at 73° F., followed by subsequent enemas (to be retained) at 63° F., should be used for revulsive purposes.

Good, pure air in the sick chamber is an essential factor in the treatment. The diet should consist of lemonade made from fresh lemons, orange juice, thin apple sauce, oatmeal

pap, barley water, and so forth. The use of milk is to be avoided.

Diseases, Chronic. (See Index.)

Diseases, Chronic. (See "Phthisis.")

Diseases induced by Occupation. (See "Trade-Diseases.")

Diseases induced by Professions. (See "Trade-Diseases.")

Disinfection is the name given to proceedings by which people try to free themselves from those disease-producing matters which hover round them or cling to them. I have already, in the first portion of this work, pp. 252 et seq, spoken very fully on this subject, and emphasized the fact that the natural curative treatment only recognises two means of disinfection, and only makes use of these two, namely, cleanliness and fresh air. At the same time, in order to let "Science" speak for once at any rate in connection with this subject (for "one must hear both sides"), we will hear what a "Scientist" has to say on the subject: A feeling of despair at being without protection against the terrible power of the plagues that fell upon mankind arose, and an effort to exorcise the furor epidemicus (it was recognised or directly felt even from the earliest ages, that the origin and spread of plagues came about through some material cause) had to be made. Therefore, not only the bodies of those who had died from plagues, whether men or beasts, and all objects that had come in contact with them, were destroyed whole houses and villages were burnt to ashes in order to remove the unknown spirit of the plague. All other possible means, especially by fumigation, people sought to destroy the germs of the plague. The unknown miasma and contagion (so history describes it), the combating of plagues, shows a long course of bad mistakes, until within the last twenty-five years the discovery was made that the outbreak of all infectious diseases was due to the presence of quite specific disease-producers, or germs of infection, which, either by means of direct transference, or transference through the earth, the water, or the air, found the widest possible distribution. On the basis of this correct knowledge the combatting of infectious diseases was taken in hand, in such a manner that the attempt was made to destroy the organisms that gave rise to these diseases. Before this, the smallest, and at the same time in another sense, the greatest, enemies of the human and animal bodies,

so deadly, both on account of their vast numbers, and on account of the poisonous nature of the products of their metabolism, could begin their deadly activity. Bent upon combating plagues by disinfection, they began to compass their end by the use of chemical remedies or a high degree of heat, according to the character of the object to be disinfected.

The number of chemical disinfectants has since then become legion, without one being found that was entirely calculated to attain this object and be fit for use. In the first place it is to be remarked that all disinfectants, in the form of powder, chloride of lime, crude sulphate of iron, carbolic sprinkling powder, etc., only attained their object in a very imperfect and most unsatisfactory manner. Fumigations with sulphur, or with all kinds of pleasant smelling materials, are nothing more than a highly dangerous form of self-deception, since they do not destroy any germs at all. Fluid disinfectants have been proved to be most effective. Assuming always that they possess a germicidal action, they have the greatest power of disinfection, because they are capable of very fine division and can penetrate everywhere. The best known are carbolic acid and chloride of lime solution; the latter of these, however, cannot be used everywhere, and is only of any use when it is quite freshly prepared. The former is, in regard to its effectiveness, much over-estimated, and its good reputation has long been shattered; added to which carbolic acid is so extremely poisonous, and its smell is so annoying, that it is better kept out of the household. Corrosive sublimate (perchloride of mercury) is no doubt very effective, but is too dangerously poisonous; creoline is, on the one hand, not so harmless as it is represented to be, and its effectiveness is very small and unreliable. Permanganete of potash does not disinfect at all, but is only deodorant (takes away bad smells). The best disinfectant has proved itself to be lysol. It is instantaneously dissolved and entirely soluble in every kind of water; it remains in solution and feels soft to the touch; it is entirely without danger, and its smell is not disagreeable; it invariably destroys disease germs in the shortest space of time without in any way attacking the objects on which it is used. At the same time it cleanses admirably, is very cheap, and therefore should be present in every household.

Dislocation or Luxation. — When a bone has been forcibly moved out of its articulation by outer influence, and

is no longer in a normal, moveable connection with another bone, or, in other words, when the ends of the bones of a joint have been permanently displaced, and the articular ligaments that form the capsular ligaments are torn, one speaks of a "dislocation." The dislocated part may be distinguished from its corresponding healthy one by the change that has taken place in its shape. Any effort made to move the articulation is attended by great pain.

The treatment should consist of replacing the bones that have been dislocated as quickly as possible in their normal position, and in order that they keep permanently in that position, proper bandages should be applied, which should be worn for some time. The replacing of the dislocated bones must be the work of a clever surgeon, because any faulty treatment, any pulling of the articulation in a wrong direction, may have very injurious consequences.

The articular surface must be extended, by being drawn in the direction in which the dislocation is situated, and when this extension has taken place this dislocated part should be loosened, and by a quick, clever movement, brought again into its natural position. Hereupon the joint and the surrounding part must be enveloped in a damp, long linen bandage, which must be followed by another bandage (similar to that which is rolled round splints, and which has already been mentioned in the article entitled "Bones, Fractured.") While waiting till the doctor arrives, one should cover the dislocated joint with thick stimulating compresses, of from 64° to 68° F. These should be changed as soon as they get hot, in order to prevent a swelling, and other signs of inflammation, which would make the replacing of the dislocated bones very difficult, and at the same time greatly increase the pain.

Dizziness.—Vertigo is either a co-symptom of the most varied disorders of the constitution, or is the result of disturbances and disorders of the nervous system, especially the brain nerves. It may be either a symptom of pressure of blood on the brain, or a premonition of apoplexy, or it may indicate disease of single parts of the brain, especially of the lesser brain (cerebellum). Outside influences on the brain, which temporarily disturb the balance of its functions, such as a rapid spinning movement, or a vivid idea of a fall, when at a dangerous height, may bring it on. Dizziness is generally accompanied by flickering of the eyes, darkness before the eyes, sickness, ringing in the ears, shivering, pallor,

terror, etc. Its causes are very varied. It may be caused by looking down from a great height, from looking upwards for a long time, dancing, riding back to the engine, rowing on the sea, smoking, drinking alcoholic liquor, straining the sight, etc. It may also be caused, reflectively, by overstrained nerves, as for instance, by hunger, indigestion, bowel troubles (worms), etc. There are also distinctions to be made between nervous dizziness (accompanying hysteria, hypochondriasis, and other nervous troubles), dizziness during pregnancy, in heart disease and poverty of blood. Finally, it may also be constitutional. The feeling of dizziness is described by one as if the head were empty, or as if a heavy cloud were pressing on it. Others say again, they feel as if the ground were swaying under their feet, as if they themselves were staggering or stumbling, as if everything were whirling round them. The feeling of apparent whirling, either on one's own part or that of objects around, either takes a circular or lateral direction, or backwards from front to back. The optic nerve is often irritated, as we know by the optical delusions that occur, seeing double, and the flickering and blackening before the eyes.

The treatment must aim at the removal of the exciting causes of a disposition to dizziness, nervous dizziness and other kinds. A single attack may be treated the same as "Swooning." (See Instructions.)

Doctors of Medicine, Physicians, are titles which are at the present day monopolised by the representatives of medical science, and the law of this enlightened country punishes anyone using them who has not been approved and given a diploma. Dr. Joseph Ruff, of Carlsbad, gives a "most classic" definition of the word "Doctor" in his "Illustrated Guide to Health." It is as follows: —

"A person is called 'doctor' who has passed through a course of study, in the cure of diseases of the human body, prescribed by law. In the Middle Ages even, there was a distinction between established physicians with the title of doctor, or magister, and the travelling physicians who plied their illicit trade at the fairs, and were looked upon as dishonest. This distinction is still in existence, with the difference that the latter species do not visit fairs, but have their reception rooms, call themselves 'Natural-health Doctors' or specialists for every possible or impossible disease, and are not only looked upon as, but actually are, dishonest."

It is quite a treat to me to nail to the wall this quotation of a medico (the author of "A Popular Handbook for Everyone") about the unelected practitioners of the "Natural Curative Treatment." Comment is almost superfluous. When this "recognised school" sinks to "argument by insinuating phrases" to shield itself against new truths, against the reformation in the treatment of disease, when "science" and "learning" are identical with "cheek" and the loss of "useful knowledge," then true knowledge comes to an end; but to further argue with the author of this "popular" Guide to Health would really be too great an honour for this knowing Theban.

Nevertheless, the common-sense meaning of the word "doctor" or "physician" is that everyone is a physician who knows how to cure disease: "And everyone can cure who knows what is curative," to quote the late Dr. Hyrtl, the eminent professor of medicine in Vienna.

Douche. (See Index.)

Douche (Kneipp's System). (See Index.)

Dropsy.—The name "dropsy" is applied to an illness during the course of which the cavities and cells of the body become filled with a watery humour. This disease may set in after an illness which was caused through a bad condition of the blood, or it may be caused through an improper diet, or defective circulation. This causes the vascular organs, which are greatly dilated, to let a morbid amount of watery fluid pass through into the blood, whereupon the fluid humour is sent, in abnormally large quantities, into the cells and tissues of the body.

The treatment should aim at removing the cause of the complaint. (Regarding this matter, comp. the articles on "Diseases of the Stomach," "Chest," "Ovary," "Ventricle of the Brain," "Pericardium," also "Dropsy of the Lungs" and "Inflammation of the Kidneys.")

Drowning, Treatment in Cases of.—The widely-spread opinion that death from drowning is caused by the entry of water into the lungs is erroneous. Death most usually happens in cases of drowning through suffocation, through the cutting off of the supply of atmospheric air which supports respiration. The face of the drowned person, who in this case has often had a long conflict with death, appears turgid and blueish-red, the eyes have a dark blue line under them, foam is found in the mouth, and mucus in the

air tubes, and water in the lungs and stomach. When the drowned person, on the other hand, has become unconscious, and the respiratory movements and the beating of the heart have ceased, and the rima glottidis has been closed by a convulsive movement, so that no water could penetrate into the lungs, the face of the drowned person exhibits a striking paleness and turgidity, the eyes are protruded and only half-closed, the cornea of the eye is dull and coated with a slimy mass, the tongue hangs out of the mouth or is fast between the teeth, the fists are clenched, and the skin on the feet is wrinkled. Again, in other and rarer cases, persons who die below the surface of the water really die of apoplexy. This happens most readily when either these persons have a predisposition to apoplexy, or when the water is very cold and the person in question is overheated. In this case an extravasation of blood into the brain has taken place, and produces death. With persons who have become attacked with apoplexy under water there is therefore very little to be hoped from attempts at resuscitation.

The first step to be taken for the saving of persons who have been apparently drowned is, according to the wise and intelligent saying of an old professor, "to get them out of the water." Since it happens that even in the case of persons who have been a long time under water life is not completely extinct, every drowned person on whom the signs of commencing decomposition are not perceptible should be regarded as only apparently dead, and accordingly should be immediately subjected to treatment that aims at resuscitation. When life is still present it may be recognised in the same way as I have described in the article dealing with the treatment of persons who have been hanged, and one often succeeds, through efforts continued over many hours, in recalling the departing life and saving the victim of the accident. When the body of the drowning person has been got out of the water, which must be done with care, he should be laid, in favourable weather, on the ground on the bank of the river or on the sea-shore, and in unfavourable weather in the first house that one can get to, in a somewhat warmed room. He should be laid upon a mattress, and the wet clothes quickly removed from the upper part of the body down to the hips. At once begin to free the mouth, the nostrils and the pharyngeal cavities from mud and other uncleanness. One should then draw out the tongue, and fix it as described

on p. 888. In order to induce free respiratory movements one may at once tickle the pharynx and the uvula with a feather, irritate the nostrils with snuff, and strike the breast hard with a wet pocket handkerchief, or pour over it cold and hot water alternately. If by these means independent respiratory movements do not set in, then one should lose no time in setting about the application of artificial breathing. (See under this head.) The restoration of respiration must, in all circumstances, be the very first task; only when this function has been restored may one begin to use means for the restoration of the circulation of the blood and for raising the production of warmth. The efforts at restoring automatic respiratory movements must, therefore, be continued without intermission for a very long time and with great patience. Under no circumstances, however, should one turn a drowned man up head downwards, in order, as people say, "to let the water run out." He should not be lifted up by the legs, but had best be laid on his knees and abdomen, while at the same time one places the left arm under his head, the head and the breast being somewhat lower than the rest of the body, so that he is thus bent over somewhat forwards, while with the right hand one exercises a moderate pressure upon the back in order to effect the emptying of the water out of the lungs and stomach. If electrical apparatus is at hand, an induction current of moderate strength should be applied upon the back on both sides of the spinal column. As soon as automatic respiratory movements have set in again, discontinue the stimulation of artificial breathing, pack the victim of the accident in warmed dry woollen cloths or blankets, apply hot water bottles to the hands and feet and between the upper and lower parts of the leg, under the armpits, and on both sides of the trunk, and every five minutes lay a vapour compress on the stomach and abdomen. As soon as the patient is able to swallow give him warm drinks, such as tea, coffee and wine, or only warm water by teaspoonsful.

Dreams. (See "Sleep.")

Drink Craze, or Craving.—By this we express a defective mingling of the humours, in consequence of continual habitual use of intoxicating liquor. The symptoms have been described in the article "Alcohol," to which I refer to prevent repetition. The treatment should be a gradual abstinence from alcoholic liquors, and the adoption of the "General Strengthening Treatment."

Drink Mania. (See "Delirium Tremens.")

Drug Disease. — The continued use of drugs (mercury, morphia, bromide, and iodide of potassium, hydrate of chloral, etc.) produces a particular state, which may show itself in various symptoms. This disease can only be cured by the natural treatment, particularly by the use of the strengthening curative treatment (see this); in some instances the "lowering-diet treatment" (see this) is admirable; more particularly in those cases where the offending drug poisons have already entered into chemical combination with the tissues of the body. Massage and gymnastic treatment, combined with diet-treatment, may be of service in some cases.

Drunkenness, Acute Alcohol Poisoning. — By drunkenness we understand a diseased state of the general system, brought on by the abusive use of alcoholic liquors, and frequently accompanied by a moral sentiment of disgust.

The disease is characterised by the following symptoms: relaxation, languor, distaste for everything, especially incapacity for mental activity, hot head, cold extremities, sickness, retching, headache (hair pain), loss of appetite, etc.

The treatment consists in a from 72° to 78° F., tolerably strong wet patting, or rubbing down, coupled with shower bath at 63° to 67° F., or in an 86° to 88° F. half-bath, after which the patient runs about in the open, in order, if possible, to induce perspiration by bodily exercise. In constipation, aperient enemas, at 72° to 78° F., with little cold ones at 59° to 63° F., are used. The patient abstains either wholly, and takes from three to five mouthfuls of cold water every hour, or shortly before dinner he may enjoy a small quantity of the same kind of liquor that brought on the catastrophe; only he must not sit long enough over the morning quencher for the dog to bite him again.

Dry Wrap. (See Index.)

Duct of the Tear Glands. (See "Eye, Diseases of the.")

Duodenum. (See "Digestive Organs.")

Dwelling, Position and Arrangement of the same. (See Index.)

Dyscrasia. — Means a bad composition of the fluids of the body.

Dysentery. (See also "Diarrhœa.") — This is a complaint affecting the bowels, more especially the large intestine, which is an epidemic, and is said to be infectious, though it is proved to be miasmatic rather than contagious. Incubation lasts four to six days. No premonitory stage occurs, except slight digestive troubles. It begins with diarrhœa, which increases during the following days to a great extent, and is finally incessant. The evacuations are small; they are blended with blood and slime. The nearer the disorder approaches the catarrhal stage the more slimy they become, and are in fact not more than a slimy fluid. This is intermingled with blood and suppuration. If it enters the diphtheritic stage, when membranous formations set up, the evacuations are mattery, or mingled with blood and membranous particles, when the membrane becomes inflamed. There are other symptoms: intestinal colic, tendency to go to stool, cramp in the posterior muscles, fever, with uncertain course of varying degree, and sometimes choleraic symptoms in the stage of collapse. Sickness and inflammation of the bladder often occur. Light cases last over a week, severe ones often last two or three weeks. The evacuations become normal when improvement sets in, the pains and disagreeable sensations cease, the intervals between going to stool are longer, and convalescence sets in and lasts for several weeks.

The treatment consists of stimulant body bandages (72° to 77° F.), changed every two hours, with stimulant packs on the calves (77° to 81° F.), changed every four hours only. The bandages may be exchanged for vapour compresses (to alleviate the pain) three to six successively, renewed every few minutes. About four or six times a day administer enemas (77° to 81° F.), followed by a small cold one at 68° to 72° F. The patient may take, two or three times a day, baths rising from 95° to 106° F., staying in for some time. Further, "Instructions for Sick Nursing" (I. Chap. 38), and "Invalid Diet" (I. Chap. 39), may be adopted. The diet should be most simple, principally pappy and glutinous.

Dyspepsia means weakness of the digestion.

E.

Eat and Drink, what shall we? (See Index.)

Ear, the. — There is a distinction in the mechanism of the outer, middle and inner ear, the outer and middle

conveying the sound, while the inner receives its impressions.

The external ear (Figs. 366a and 367 a) is a mushroom-shaped cartilaginous lobe covered with skin, and in some places with muscular tissue terminating below in a non-cartilaginous appendage, the lobes of the ear.

The auricle, or ear muscle, is attached obliquely to the side of the skull, and is continued into the outer auditory canal (Figs. 366 b and 367 b). This represents a bent canal,

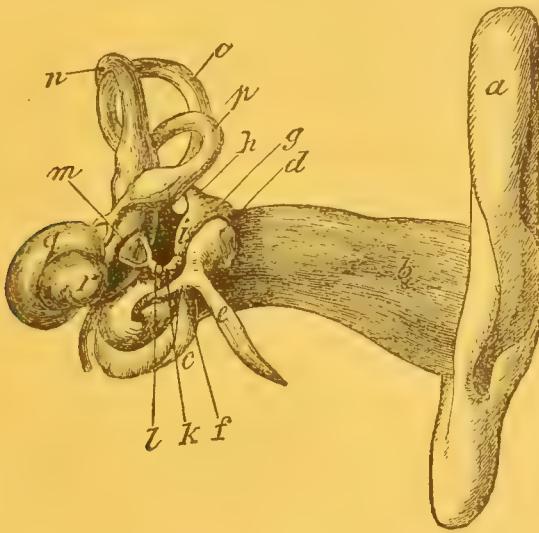


Fig. 366. Detached Sections of the Human Hearing Apparatus in relation to each other.

a. The outer ear (concha). b. The outer auditory passage. c. The tympanum. d. Head of malleus. e, f. Processus gracilis. Extension and handle of the Hammerbone (malleus). g. The anvil (incus). h. Short, i. Long process of the incus. k. Lenticular process of the incus. l. The stapes. m. The two branches of the stapes fixed to the margin of the fenestra ovalis. n, o, p. Anterior, posterior, and external semicircular canals. q. Cochlea. r. Cupola of the cochlea.

which is protected from external objects by the wax and by hairlike filaments. The auditory meatus conveys sound to the tympanum (Figs. 366c and 367c), or drum, a delicate elastic membrane surrounding the internal part of the meatus. The tympanum separates the outer from the middle ear. The middle ear is formed by the tympanic cavity (Fig. 367d), which is a cavity in the petrous or solid portion of the temporal bone, divided from the external meatus by the tympanum, and is continued internally as the eustachian tube (Fig. 367e). This canal terminates in a funnel-shaped opening

in the upper part of the pharynx behind the nasal cavity (Fig. 342r).

On the inner wall of the tympanum, i.e., the cavity which separates it from the inner ear, are found two small openings, lined with fine silky skin, the round and oval window (fenestra rotunda and fenestra ovalis).

Between the inner wall of the tympanic cavity and the outer wall formed by the tympanic membrane, is a collection or chain of small bones (Fig. 367f), the ossicles. These

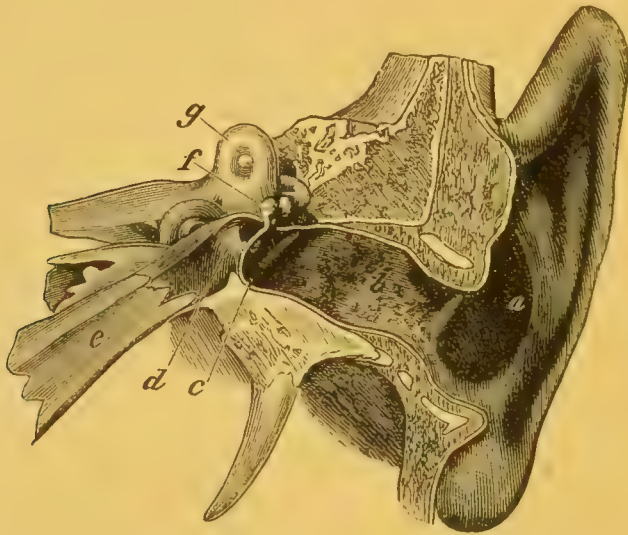


Fig. 367. Section of the Human Ear.

a. Outer Ear. b. External meatus of the Ear. c. The tympanum or drum. d. The tympanic cavity. e. The eustachian tube. f. The ossicles. g. Semicircular canals.

form a flexible chain covered with mucous membrane. The outer ossicle (small bone) is the malleus or hammer. It is attached to the tympanic membrane by the manubrium, or handle (Fig. 366f). Its head (Fig. 366d) rests on the incus, or anvil (Fig. 366g), which has two processes—the long and the short (Fig. 366h, i). The stapes (Fig. 366l) is connected to the lenticular process in such a way that the base of the stirrup (Fig. 366m) fits on to the margin of the fenestra ovalis. The inner ear, or labyrinth, is formed by a series of cavities channelled out of the substance of the petrous bone. The auditory nerve is situated in the membranous labyrinth (it divides into the cochlear and vestibular branches). The

labyrinth is divided from the tympanic cavity by a thin long wall, in which we see the fenestra ovalis and the fenestra rotunda. The labyrinth is divided into the vestibular, the cochlear, and three semicircular canals. All these parts are closely connected. In the middle of the labyrinth is the vestibule; it is somewhat ovoidal in shape, about the size of a pea. Here are found two bags, a round one and a long one, in relation to each other (the utricle and saccule), and both contain ear lymph. The cochlea lies on the anterior wall of the vestibule, and is in communication with the saccule. The lamina spiralis (a delicate lamina) contained within the canal of the cochlea follows its windings and subdivides it into two. These are filled with peri-lymph and calcareous granules; the cochlea nerve terminates in them. The three semicircular canals, superior, posterior, and external (Fig. 366 n, o, p), and the oval or long bag in the vestibule, are in direct communication. They present the form of semicircular canals, the posterior, upper section of the inner ear, and contain cavities filled with lymph and calcareous sand.

Ear, Care of the.—It requires no special argument to prove that the sense of hearing, in the sound constitution of its normal functions, is a lavish gift bestowed upon us by Dame Nature, secondary only to the organ of light, to bring us into contact with the outer world.

Yet no organ has been more neglected or wrongly treated in youth than the ear, ranking so highly as it does among the five senses.

On an investigation into the cases of deaf-mutes, it will be found that, in the majority of cases, it is attributable in the first place to deafness. Thus a celebrated aurist has discovered that in 210 cases, 125 were all the result of it, fifty-four only arising from natural causes, and thirty-one inherent. All enquiry into the cause of ear-disease demonstrated that it is most prevalent in childhood, owing to the maladies of that age, which exercise a baneful influence on the structures of the ear. It is, therefore, conclusive that measures should be adopted as to how best to preserve the sense of hearing for ourselves and our children.

The ear communicates with the atmospheric air through the outer ear (concha) and the eustachian tube, which connects the middle ear with the cavities of the nose and mouth. The organs of the ear are liable to injurious influences from both sides.

Hence the so justly dreaded children's complaints, diphtheria, scarlatina, etc., which centre in the throat, create ear disturbances, while the inflammation through the eustachian tube extends to the pharynx; even measles, thrush, ordinary sore throat and cold resulting in serious consequences.

It is to be regretted that, as a fact, the commencement of ear disease in the early stages of childhood causes it to be disregarded, the child not being able to indicate the seat of the disorder. Even should an infant abstain from screaming, but roll its head about, and raise its little hands towards the ear, or cry out suddenly and loudly, attention should be directed to an attack of earache. If an older child is observed to breathe with the mouth open, to speak nasally and indistinctly, to sleep uneasily and to snore, and to have a vacant countenance, it suggests glandular swelling, or a nasal growth (polypus), and, as a sequel to these disorders, ear disease. Such a condition has a very obstructive influence on the child's mental development and reflective powers, the child not being able to direct attention to its true ailment, the neglect of which entails its punishment upon parents or teacher.

The throat and nose are quite as closely connected with the ear as are the eyes with the brain. Inflammation in the cavity of the mouth and nose easily spreads through the tympanic membranes by suppuration to the ear ossicles and tympanum, which serve the purpose of circulating the air through the filaments of the auditory nerve, by which alone sound and tone are conveyed.

Neither must a discharge from the ear of children of any age be passed over, as this is a forerunner of most ear diseases. A discharge should never be looked upon as a natural result of teething, and the ear as an exit for expelling the impurities of the system.

Numerous are the faults and trespasses committed against this delicate and peculiarly tender organ. If a patient has received an injunction from the doctor to syringe his ear with tepid water, he employs cold water for the process, and in so doing uses a stimulant, which may probably create inflammation in the tympanum as an ultimate result.

Or boisterously to jump into the bath, or to dive from a height into the cold river water, can certainly not be too severely censured as injurious to health, and through the powerful rush of water introducing dense air into the ear,

the drum may become lacerated. A cautious bather should especially take care that no water be allowed to run into the mouth, nostrils, or ear, so that nothing may reach the ear cavity.

It is therefore judicious to keep the head always above water, and to stop the ears with wool saturated with some sort of oil.

As further external causes conducive to ear diseases, may be mentioned violent draughts, particularly towards the side of the ear, pelting showers of rain, fine drifting snow, etc. It would be well under such circumstances to protect the ear with oiled wool.

The ear is also injured by clapping the hands in front of it, or by a sharp sound close to it, especially if accompanied by a blow, or pulling the auricle, all these must inevitably prove more or less hurtful. Finally, the compression of air in the organs of the ear may rupture the tympanic membrane; injury may also be sustained by the function of the ear by abnormality in the fluid of the labyrinth.

Again, the bad habit of thrusting the finger into the ear, and shaking it to allay itching, has produced many affections of the ear-passages. Inveterate smokers and free drinkers of alcohol, often suffer from ear disturbances, nicotine and alcohol being both poisons, creating a chronic inflammatory condition in the eustachian tube, by means of the mucous membrane of the nose and mouth cavities.

Ear Diseases. -- The important diseased conditions of the ear organs are the following.

Blood Swellings in the Ear.—This may be either self-existent or the result of the above-mentioned injuries.

As self-existent, it shows itself chiefly by mental disease. Tumours of various sizes, generally fluctuating, appear under the skin of the auricle, hard, and containing coagulated blood. Should no absorption of this tumour take place, a drying up ensues, and leaves a hardened knot to disfigure the auricle.

The treatment consists in the application, once or twice daily, of massage to the throat and affected auricle, in the form of gentle pressing and kneading, in conjunction with mild steam compresses on the auricle, or in the application of packs nightly for the throat, body, and calves. The patient also derives benefit from vapour bath No. 4, on alternate

days, and on the intervening days a three-quarter pack, or, as a substitute, two six baths, with the frequent use of enemas.

Deafness and Dumbness.—The state of being deaf and dumb is either innate or may arise until the seventh year of childhood. Dumbness, or want of speech, does not altogether depend upon a faulty conformation of the organs of speech, but on deafness, on the utter incapability of hearing. It not infrequently happens that children who already know how to speak are rendered deaf by ear disease, and, with the loss of hearing, gradually forget the speech already acquired, and so become dumb as well as deaf.

Dumbness from birth is incurable, the condition being remediable only in acquired cases, which are discovered at a very early stage, and proper measures adopted for the removal of the disease.

Difficulty of Hearing, Nervous Deafness.—The diminution of the normal power of hearing is known as dulness, or hardness of hearing, the direct sources of the disorder being either in the auditory nerves themselves, in the membranous labyrinth or its fluids, or the tympanic membrane, or in the external ear passage. In themselves, external ear disturbances are not so serious as those of the internal ear apparatus. When the disorder results from any affection of the auditory nerve it is serious; as the pressure may produce atrophy and paralysis of the nerve. Further causes of the disorder are: Shocks to the ear through accident or blow, the action of sudden loud noise (as explosions, or firing cannon), psychical affections, long-continued strain upon the nerves, febrile diseases, scarlatina, smallpox, child-bed, and typhus fever. All conditions conducive to cerebral congestion may cause defective hearing.

Varied as are the causes of the disorder, equally so are its phases. As a rule, the sense of hearing suffers gradually, seldom suddenly, attacking one ear first with deafness. In most cases of nervous deafness, the patient is peculiarly quick of hearing, and sensitive to certain sounds, until just before deafness sets in, suffering much from sick headache, indicating the fact that the cerebral nerves are in a high state of "stimulus," or irritation. Gradually the patient fails to distinguish the sounds of speech, which appear to him only as a confused noise. The next stage is suffering from ringing noises in the ear, mistaking sounds, laborious pres-

sure and straining of the inner ear, palpitation and drawing of the outer ear-passage and neighbouring portions of the face; mental pressure, costiveness, the use of narcotics, alcohol, rich food, excitement, and changes of temperature are all aggravating to the malady.

By degrees, increasing in intensity, the disorder, sooner or later, culminates in total deafness. The sufferer hears the sound of voices or music more faintly and indistinctly, and better when surrounded by noise than tranquillity. In the morning and evening, when mist prevails, the hearing is more defective than at other parts of the day. Hunger and physical exhaustion increase the deafness.

In proportion as deafness advances the patient becomes more peevish and sullen, the change even affecting the voice, which is rendered nasal or thick.

Treatment of nervous deafness aims at raising the tone of the system through the "Strengthening Treatment," which benefit can only be anticipated in cases where the auditory nerves

have not undergone the process of atrophy. Usually, also, those cases are incurable, in which, through rheumatic or poisonous influences, nerve pressure has acted upon the nerve membrane (p. 1246).

To assist defective hearing, ear-trumpets (Figs. 368, 369) are used; strictly speaking, however, experience shows that a too fre-

quent use of these instruments for conveying sound is not desirable, as the vibration upon an irritated nerve only tends to deaden and to increase the nerve atrophy, which ultimately results in its being paralysed.

Earache. — Pain in the ear never represents a self-existent disorder, but is attendant on some other ailment; faceache, rheumatism, gout, hypochondriasis, hysteria, etc., frequently cause pain in the ear. It is characterised by severe, drawing, splitting, piercing pain in the ear, and is distinguishable from inflammation by not developing itself gradually,



Fig. 368. Ear Trumpet.

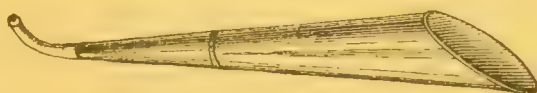


Fig. 369. Ear Trumpet.

but appearing in full force at its commencement. The frequent throbbing pain, darting towards the cheeks, teeth, temples, and occasionally towards the unaffected ear, is usually connected with dulness of hearing and acute pain. The treatment must be directed to the fundamental disorder.

Palliatives are: steam compresses, head-steaming, application of Malten's vapour douche (Fig. 133), very mild throat massage, foot baths, loosening enemas, stimulant, graduated throat, body and leg packs.

Inflammation of the External Auditory Passage, circumscribed or localised, is represented by inflammation, swelling and suppuration of one of the glands, which is also simultaneously extended to the tissues surrounding the tumour, the cause arising from a faulty mixture of the juices, which causes a tendency to head congestion.

The symptoms are, extraordinarily violent, splitting pains, extending towards the head in all directions, from the cavity of the ear, becoming worse through pressure, mastication, or speaking, also temporary deafness and slight fever, varying in intensity. The inflammation lasts a few days, the swelling bursts, discharge of pus takes place externally, sometimes the cure of one tumour only giving rise to another elsewhere in the ear, and so continuing the matter.

It may especially be said of this disease, that it is very liable to recur at longer or shorter intervals. Its specific treatment consists in fomenting the ear passage with tepid (86° to 90° F.) water (syndring must on no account be prescribed), the patient lying in a recumbent position, and the water remaining in the ear until it becomes warm; later on, steam compresses to the ear affected, four to six of them, changing the compresses from every eight to ten minutes, or to steam the ear through the medium of the Malten's vapour douche. (Fig. 133). Or instead of this vaporiser, Kneipp's steam or vapour bath for the head (Fig. 131) is employed, which places the suffering ear immediately under the influence of the steam.

In other cases it is necessary to use anti-inflammatory compresses to the ear, as illustrated (p. 512). To these remedies may be added two or three trunk or half-baths daily, or, in their place, a whole or three-quarter pack. In many cases, vapour baths No. 3 or 4, or, instead, foot baths are employed. Subsequently, several enemas, of from 77° to 81° F., are applied during the day, as a preliminary to cooler

ones of from 64⁰ to 68⁰ F. During the night, stimulating throat, body, and leg packs are laid on.

Diet should be plain, simple, and, as far as possible, vegetarian, and in order to subdue all inflammation, adopt "The General Strengthening Treatment."

Inflammation of the External Auditory, Extended.—This form of diffuse inflammation differs from that described in the previous article on "Circumscribed Inflammation," only by an extension of the seat of the inflammation, by a largely extended variety of complications, and a longer continuance of the disease.

Violent draughts of air, forcible rush of cold water into the ear, and general epidemics, such as scarlatina, measles, smallpox, erysipelas, etc., are, as a rule, the means of extending the inflammation, the pains shooting through head, throat, and nape of the neck.

Difficulty of hearing is a serious matter in these cases, as the tympanic membrane becomes inflamed, and perforation may ensue. After some days, the exudation of a thin viscid secretion takes place, it then assumes a mucous appearance, quickly developing into purulent matter.

The treatment is the same as that described in the previous article on "Inflammation of the External Auditory Passage." For the absorption of matter from the ear, frequently apply, during the day, a pure, aseptic cotton wool compress, steeped in water at 77⁰ to 81⁰ F.

Obstruction of the External Auditory Passage is caused either by an accumulation of dried up ear-wax, or the introduction of foreign substances from the outer ear. The ordinary symptoms are running at the ears, difficulty of hearing, occasional giddiness, feeling of constriction in the head. The pressure of foreign bodies in the ear frequently induces general spasms, cough, difficulty in swallowing, vomiting, etc.

The remedy consists in the softening and removal of the wax, by repeated, careful injections into the outer ear passage (p. 569).

For the removal of foreign bodies from the ear, consult the article "Ear; Foreign Bodies in the Ear Passage."

Inflammation of the Middle Ear; Middle Ear Catarrh.—Inflammation of the middle ear, or tympanum, is characterised by being the most frequent form of ear disease, and producing swelling, and increase of the mucous

secretions from this part of the ear. Two forms appear—the acute and the chronic. The acute develops as an individual disease, or exists as a co-disease, or as a consequence of other maladies, such as acute or chronic catarrh of the nasal and mouth cavities, which communicate with the middle ear through the eustachian tube, and convey infectious disorders, measles, scarlatina, smallpox, diphtheria, typhoid, child-bed fever, etc.; or constitutional disease, such as syphilis. Acute inflammation of the tympanum may be also attributable to colds, wettings, continuous residence in a poisonous, impure atmosphere, and other circumstances.

The symptoms are deafness, buzzing in the ear, and other noises; straining and pain, inducing, if neglected or unskilfully treated, chronic inflammation, the greatest cause of defective hearing. Chronic inflammation either attacks the mucous membrane of the tympanum, causing thickening (sometimes filling the ear with purulent matter) contracts the eustachian tube, or results in a thick purulent secretion in the middle ear, which is destructive to the tympanic membrane, and produces an ulcerous discharge from the ear. This bad discharge varies in quantity and consistency, and is a very troublesome, and generally stubborn symptom, that greatly tests the patience of the patient.

A neglected discharge of the ear may last for ten years, and then, not only produce defective hearing or deafness, but also, from the relation of the ulcerous, inflamed tympanum with the brain, communicate the inflammation to it, and result in death.

The treatment of acute middle ear inflammation must be directed to the cause of the disease. For the rest, the described treatment for localised or circumscribed inflammation of the organs of hearing is useful.

Inflammation of the Tympanic Membrane.—Inflammation of the ear-drum is rarely a self-engendered complaint, but is usually due to outward influences and injuries, chiefly, however, is it the attendant of inflammatory affection of the outer and middle ear. The symptoms are extremely violent pains in all parts of the head, proceeding from the cavity of the ear, with oppression and noises, buzzing, defective hearing, insomnia, and a febrile condition. In a few days a watery discharge is seen, which, later on, assumes a purulent character. Ultimately the inflammation may cause perforation of the ear-drum, with ulceration of the middle

ear (cavity of the tympanum), in many instances becoming chronic.

The treatment is identical with that for "Diffuse Inflammation of the External Auditory Passage."

Injury to the Tympanic Membrane is produced either by external causes, such as unskilful cleansing, manipulation by ear-picks, hair-pins, tooth-picks, etc., or by a strong current of air, or a blow on the ear, explosions, roar of cannon, diving into the water from a great height, and shaking the head on its surface, and similar attacks on the auricle.

The usual symptoms are a sudden explosive noise in the ear, occasioning pain; a slight effusion of blood, giddiness, and defective hearing.

The treatment consists in the application of pure, medicated wool dressing to the ear cavity, so as to protect entirely from outside influences, the patient avoiding everything conducing to a tendency of blood to the head, loud talking, singing, coughing, sneezing, and pressure. The alleviative remedies are, enemata at 77° F., with subsequent small cooler ones of 63° F.; trunk or sitz baths, foot vapour baths, also throat and leg packs.

As a rule, the disease is very curable, but should further inflammation ensue, follow the instructions under the heading of "Inflammation of the Tympanic Membrane."

With Simultaneous Disorder of the Nose and Throat (Pharynx).—The following is prescribed: Frequent mouth baths (ablutions) during the day (77° to 86° F.); gargling with water, temperature 68° to 72° F., and injecting same into the nasal cavities; or nose baths (see p. 570). Chronic middle ear inflammation requires strict compliance with the "General Strengthening Treatment," and, according to individual constitution, baths of different kinds, trunk baths, stimulant body, three-quarter, spinal, throat, and calf packs, bed vapour baths (Nos. 1 to 4), air and sun baths, walking barefoot, affusions and ablutions. The daily throat massage is efficacious, and, twice or thrice weekly, massage for the whole body. Frequently syringe the external auditory passage with water 86° to 90° F.; employ gargles, mouth and nose baths, with daily wool dressing in the ear, moistened with water at 77° F.

Ear, Extraneous Substances in the.—The danger which arises from the existence of extraneous substances in

the ear depends partly on the nature of the substances, and partly on their situation in the ear passage. The greatest danger, however, is concealed under crude, unskilful experiments for ridding the ear of substances foreign to it.

It is clearly evident that the nearest organ to the ear is the brain, with its tender skin, nerves and blood vessels. The age of childhood affords the best opportunity for the observation of strange substances—peas, beans, cherrystones, buttons, pearls, bits of paper, slate pencil, and sealing-wax having been found in children's ears, substances which have been deposited there in playtime often remaining for years without creating inconvenience. With adults, as a rule, are found only such substances as have lodged by chance in the ear, such as pencil-caps, broken tooth-picks, and matches, which have become fixed there from the very bad habit of picking the ear, or injudiciously removing the wax, the worst condition of the ear being found where remedies for tooth-ache have been introduced into it, such as garlic and camphor, wadding, pellets, etc. Of special importance also is the animal matter found in the ear, insects and their larva, ear-wigs, bugs, fleas, etc., which have reached the outer passage of the ear, where they either die and are enclosed in the wax, or occasion the most irritating pain and noises; these insects are often caught from dogs, sheep, and rabbits. Children's ears become infested by them through playing with the animals. This matter, foreign to the ear, often creates tedious inflammation and pus, noises in the ear and defective hearing, hence its speedy removal is of the greatest importance. The means used are carefully to syringe the ear with tepid water (p. 569) by bending the auricle backwards and upwards, to straighten the entrance to the auditory passage.

If the obstruction is occasioned by living insects, the head is laid in a horizontal position, placing the ear affected uppermost, and fill the meatus with warm almond, olive oil, or glycerine, and after a few minutes syringe with warm water. Should this process prove unsuccessful, a curved instrument like a hair-pin is introduced into the ear, behind the obstruction, so as to reach and remove it. Should this manipulation not succeed others are employed, and a skilful surgeon is called in. On each abortive attempt of an unqualified practitioner the insects are driven further into the ear, and finally into the walls and drum.

Plate V.

Fig. 1. Purpura.

Refer to text on page 1234.

Fig. 2. Tetter or fever blisters (Herpes).

Refer to text on page 1117.

Fig. 3. Eczema.

Refer to text on page 985.

Fig. 4. Salt rheum.

Refer to text on page 986. The illustration represents the beginning of the healing process, which comes about by means of scabs and crusts of considerable thickness and circumference. In most cases the peeling process continues for some time after the scabs and scurf have gone.



Fig. 1.



Fig. 2.



Fig. 3.

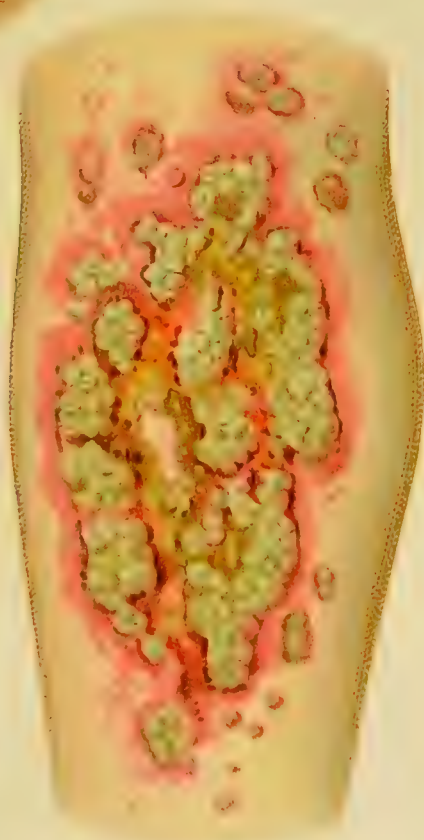


Fig. 4.

It is perfectly evident that every unskilful manipulation only aggravates the evil, which can then yield to nothing less than a serious operation.

Ear, Noises in the.—This disease is the result of irritation in the auditory nerves, and its worst consequence that of causing congestion of the cerebral nerves. It may, however, arise from neuralgic or rheumatic affections; it is always the accompaniment of ear inflammation, and in such cases a painful one. It may also appear if the outer ear passage be obstructed with wax, insects, or if irritation of the tympanum be present.

The symptoms are singing, buzzing, or ringing sounds, sometimes like distant music, the waves of the sea, or the roaring of a storm.

The treatment must be directed to the cause. The remedial measures are foot baths, or foot vapour baths, throat massage, stimulating calf or leg packs, also abdominal packs.

Ear Polypus usually develops as the result of long-standing purulent excretion, generally taking root in the posterior half of the ear passage; it is very tender, so that slight contact causes a watery hemorrhage. It develops into a hard solid swelling. The polypi increasing in number or growth, and interfering with the wax, the whole ear passage gradually fills up and causes defective hearing. The symptoms are sensations of stuffiness, pressure, tension in the ear, occasional nausea, vertigo, etc. Should the polypus burst and discharge its matter, the symptoms abate, until its refilling is completed.

Treatment is identical with that of "Inflammation of the External Auditory Passage" (p. 980).

Ear Syringe. (See Index.)

Eclampsia. (See "Cramp.")

Eczema; Impetiginosum; Scald Head. (See "Tetter.")

Eczema, or Weeping Eruption, is shown at once by its name to be a skin disease that is characterised by a watery exudation. Eczema generally arises in a chronic form, and only with extreme rarity in an acute form. It consists of an enormous quantity of bright or deep red vesicles or pustules, which develop upon an inflamed and scaling-off basis of skin, and form a damp or weeping surface, or one covered with scabs, causing more or less itching pains and burning

sensations. According to the parts of the body where weeping eczema is found, a distinction is made between

Eczema of the hairy part of the head, which attacks either a portion or the whole of the hair-covered surface of the head, and finally clogs the hair. There is then an accession of fungi and animal parasites, and in combination with the excretions of the sebaceous glands, a penetrating smell is developed on the head. Uncleanly persons acquire then, in place of the hair of the head, an inextricably tangled, bad smelling mass, full of scabs and scales, which is called *plica polonica*.

Eczema of the face, *crustea lactea*, which chiefly afflicts children in the suckling period, has been described by me already on p. 1231.

The eczema of those parts of the face which are not covered with hair—the lips, the ears, the eyelids as well as the eyebrows, the nipples, the sexual organs, the anus, the arms and the legs—often forms a very obstinate eruption, partly of weeping eczema, partly of scabs, crusts, scurf and scalds: that on the legs, for the most part on the lower parts of the legs, the so-called *salt-rheum*, the reddish inflamed skin of the legs then generally looks as if it had been covered with liquid glue; it feels sticky, and smells very badly. Sometimes weeping eczema also appears upon the hands, especially upon the palms of the hands. The causes which may produce eczema are very varied in kind. They may be mechanical, thermic, or chemical irritating influences, which form the provocative impulse to the outbreak of the disease. Weeping eczema may, for instance, arise through the scratching or rubbing induced by some other skin disease that causes itching. Also excessively stiff linen collars, cuffs, etc., may, through the continual friction they exercise upon the parts that come in contact with them, produce weeping eczema. With very fat people the disease is often formed in the folds of the skin of the abdomen, and is then known by the name of excoriation or chafing.

Long-continued sunburn, which exercises its influence upon the unclosed parts of the skin of sensitive persons, may likewise lay the foundations of weeping eczema in the same way as it is caused in some workmen, such as stokers, engineers, smelters, etc., through constant proximity to a large fire. *Leucorrhœa* (the whites), vomiting diarrhœa in young children, an increased flow of tears, etc., may, through the injurious

influence exercised by these secretions, favour the outbreak of eczema. In the same way the inunction of medicaments, especially with ointments that contain such mineral poisons as iodine, mercury, etc., are often the originating causes of weeping eczema.

Eczema, which, as I have explained, is in most cases of a chronic nature, generally lasts for a considerable time. The curative treatment requires much patience and perseverance. A cure, in slighter cases, is generally not effective in a shorter period than three months, while severe and deeply-rooted cases of long standing, sometimes require for their complete cure several years. The popular opinion, so widely spread, that an outbreak of eczema, especially of weeping eczema, cannot be suppressed without injury to the health, because it is the form in which the organism is attempting to rid itself of the uncleannesses and irritating matters contained in the humours and in the blood, is entirely erroneous, and is to be just as energetically opposed as is the bad habit that arises from the same view of attempting to remove the disease of eczema by the application of so-called "blood-purifying remedies." (Comp. the article "Blood, Purifying of the.") These remedies do more to fill the purses of the manufacturers of secret remedies and patent medicines than they do for the purification of the blood of the patient. It certainly does happen that some other disease, an internal chronic form of disease, shows a marked change for the better after an outbreak of inflammation of the skin of the nature of eczema, since here undoubtedly there is a drawing away of the blood towards the skin, and an exudation of materials that cause disease has taken place. Only it would still be making a very great mistake indeed if we were to regard the eczema-like exudation as no disease in itself, and therefore to be filled with anxious fears when it ceased, since the normal excretion of disease-producing matters, when it takes place through the skin, is, as is well known, always in the form of exhalation (in a gaseous form), and in that of sweat. The local treatment of a case of weeping eczema, by the use of proper means, can never do any harm. It may, however, very frequently remain devoid of results, if the general primary disease from which the eczema patient is suffering is not properly treated.

On account of the many varied forms in which weeping eczema appears, it is particularly necessary that the treatment

should be strictly individualised, according to the particular circumstances of each case, and this is all the more necessary in those wearisome cases of long standing which have defied all other.

With reference to the local treatment of eczema by means of the Natural Curative Treatment, it is usually sufficient to bathe the weeping places for a short time with water at from 93° to 95° F., or to dab them with chemically pure, clean cotton wool, or lint dipped in water at this temperature, and then to dry them with dry cotton wool or lint, and thereupon to cover them with rice powder. The diseased portions of the skin are then bandaged with thin cotton, or, better still, with a bandage of gauze. Scabs, crusts, and so forth, are to be frequently smeared with oil of almonds several times a day. Of course it is understood that the oil of the sweet almond, and not that of the bitter almond, is to be used for this purpose, or one lays a linen rag saturated in this oil on them, and renews it from time to time with a fresh application. This procedure must be undertaken several times a day. Bathing of long duration, stimulating fomentations, or damp warm compresses, are, except in special cases, not so generally advisable as is a dry treatment. Healthy parts of the body, that is to say, those parts of the body that have not been attacked by eczema, can meanwhile be bathed with advantage; and it is also advantageous to apply to these parts packs and steam applications, in order to stimulate the excretory action of the skin in these, and thereby to unburden the diseased parts. When, however, eczema has already proceeded to scale off, bathe the affected parts of the skin in water at from 89° to 91° F., but not for any length of time. Eczema of the head, in which the hairy portion of the head is chiefly attacked, requires the cutting off of the hair, frequent head baths of long duration, at from 91° to 93° F., for the softening of the scab; drying (by means of dabbing) with lint or cotton wool, inunction with oil of almonds, and the covering of the weeping places with cotton wool, after which the head is to be bound up in a cloth. Compare the article "Bandage." When the head scales off, one should apply every night a stimulating head pack at 77° F. Any portions of the skin that are particularly moist from the exudation of the eruption and the folds of the skin should be covered with a quite thin layer of cotton wool, which, as a rule, is generally close adherent, and of which one should make use according to circumstances,

as an article for protective covering until it comes off of itself. When the anus is the seat of the disease it should be dabbed several times a day, at first with moist and then with dry cotton wool, then powdered, and then there should be laid upon it a dry iliac pack (only the contents of the same). The same procedure should be adopted in cases of eczema of the sexual organs. In the scaling—off stage one should then make use of sitz baths of short duration at a temperature of 90° F., perhaps two or three in the day. In addition to other light treatment suitable for the parts, in cases of weeping eczema of the nostrils, as well as in those of weeping eczema of the greater and lesser lips of the vagina, introduce a tampon (a longish plug of chemically-cleaned cotton wool), which should be renewed about three or four times a day.

The general treatment in regard to dietary, exercise, and so forth, should consist of that prescribed as the General Tonic or Strengthening Treatment. A general hydropathic treatment is only to be adopted in such cases in which the moist portions are not in any way injuriously affected. The new school of dermatologists apply local treatment almost exclusively in cases of eczema, and I must say this, in favour of so-called scientific medicine, that it attains very favourable results in this instance. At the same time, the possibility is not excluded, that in many cases of deeply-rooted eczema, especially of such cases of eczema as rest upon a scrofulous, a rickety, or a syphilitic basis, that a systematically carried out lowering cure might attain just as good if not quicker and more certain results.

Eczema, Itching, or Prurigo, is represented by a diffused eruption of pustules, from the size of a millet seed to that of a grain of corn, flesh-coloured or light, red, and itching intensely. It mostly appears on the extensor surfaces of the extremities, also on the chest, abdomen, back, and nape; more rarely on the other parts of the body. The characteristic symptoms of this skin disease are the constant unbearable itching, increasing with the warmth of the bed. The patient is obliged to rub or scratch to such an extent as to cause further skin disease.

The treatment is to a great extent the same as that for scaly eczema. Hot full baths (p. 517 et seq.), box vapour baths, Russian vapour baths, warm herbal bandagings, and the continued use of sun baths and dry packs are greatly to be recommended.

Eczema, Scaly. (See "Psoriasis.")

Effervescence. (See Index.)

Elbow Bath. (See Index.)

Electricity. — Electricity in the form of the electric current has always been recognised as a curative agent, and has been applied for this purpose. Whereas, however, in earlier times, people only had the simple electricity produced by friction, at the present day they have at their disposal galvanism (contact electricity) electro-galvanism and electro-magnetism (induction electricity, or Faradisation), and are therefore in a position to produce a modified electrical power by means of rotary machines, and to apply the electric current, in its most varied physiological and physical chemical actions, to the cure of diseases of the human organism. The application of electricity, a natural force which, in its origin, belongs to the inorganic world, rests upon the same principles as the other curative methods which are based upon natural laws. Electricity has the following properties in common with these: the capacity for stimulating the circulation of the blood, producing a normal blood distribution, reviving the paralysed parts of the body, soothing irritated parts of the body, stimulating secretions, and furthering the processes of assimilation, the soothing of pains, etc. Therefore one is glad to be able to combine electricity with massage, and with hydropathy, in order to remove congestion and stoppages of the blood, also to attract the flow of blood to the skin, and assist metabolism in the muscles, etc.

Electricity is — to begin with the A B C of the subject — not matter, but a force, which demonstrates its existence in motion, and which reaches our senses and perception by means of its expression as a mode of motion. The phenomena of the movements of electricity may be compared with the vibratory movement of waves, which, when they strike our sense of hearing, produce the sense of sound; when they strike our sense of sight, are perceived by the eye as a flash of light; and when they touch our sense of temperature perception (the sense of cold and warmth) are felt as a thermic stimulus. After this stimulus has reached the nerves of sensibility, we experience pain; if it reaches the nerves of motion, the muscles that are dependent upon these nerves of motion are caused to make reflex or automatic movements. If it reaches the nerves of taste or smell, we experience a certain taste or smell, etc. We therefore perceive from all

this, that electricity is a transient or volatile nervous stimulus.

According to the mode of its application, one finds electricity either as a tonic, a stimulating, or pain-producing agent, also as a relieving, and, under some circumstances, pain-soothing influence. Electricity is applied in the form of shocks or stimulating discharges, in continuous (uninterrupted or constant) or in intermittent (interrupted) currents, as well as in the form of the electrical bath (p. 560 et seq.). In practice one operates at the present day only and exclusively with the galvanic (uninterrupted), and with the Faraday's (broken) current, for which a very simple set of apparatus is required, as well as with the so-called "influence machine" by which static electricity is produced. As to the manner in which the galvanic current and static electricity are produced, I have given full explanations on p. 561 et seq., it only remains for me in this place to say something about the Faraday current, that is well worth mentioning.*

* The so-called induction machine, with which the broken current is produced, is very well known to the public. In the lectures on physics at college, the apparatus is practically demonstrated for the benefit of the pupils. One feels the currents and the shocks of the apparatus, and has an awful dread of them. The pupils amuse themselves at their own expense and that of others, and in the end come to believe firmly that this is electricity, and that electricity is applied just in this way for the treatment of disease. The lay-public is strengthened in its error by the circumstance that one constantly sees the "electro-quack," or electrician in the streets, praising up his electrical apparatus to everyone, and offering them the electrodes made in the form of metal handles, and recommending the effect of this primitive apparatus as a panacea against all the possible and impossible diseases of mankind. For a penny one can taste the "pleasures" of being electrified, and the usual layman experiences a boundless joy when he can show others how much electricity, or how strong a shock he can stand—to the obvious injury of his nervous system. Then all the other clever people who stand round and gape, see how the curative ends are attained by electricity. The "victim" makes grimaces during the electrical procedure, in order to give expression to his somewhat mixed feelings, and this again is taken by the crowd that stand around as a fresh evidence of the secret power of the thing. For the public has been trained by "medical science," through the painfulness of its operations, and through the administration of nasty-tasting medicines, etc., to measure the effectiveness of medical treatment by the greatness of the bodily discomfort and suffering caused thereby, but "*mundus vult decipi ergo decipatur*," the world likes to be deceived, therefore let it be deceived. The theory of electricity, as a curative agent, can only be

The Faraday current is produced by the induction machine, in which a galvanic current circulates through a spiral of copper wire, which is wound on a roller (coil), isolated by being covered with green or brown silk, the current being alternately opened and closed by a self-acting interruptor, as a rule in the form of a small spring hammer. Its action causes the well-known peculiar burring sound. Over this copper spiral (primary spiral) there is attached a second more extensive spiral (second spiral), in which a current of short duration (induced current) is produced, when the current in the primary spiral is shut off or opened. Almost exclusively with this induction current of the secondary spiral the electricity used for curative purposes is applied, and hardly ever with that produced by the first spiral. If one interposes the human body between the two electrodes (p. 561) of the second spiral, then there flows through the human body a series of collective induced currents of short duration. Since the induction current is stronger when the current of the primary spiral is opened, then, when it is closed, and also has a stronger effect, the direction of the induction current is, as a rule, named after the open current. In this sense it must also be understood, when one speaks of the positive and the negative poles of the induction current.

The effects of electricity upon the living human organism are partly physiological and partly physical. In the nerves and muscles a wholesome alteration is produced, or a change in their susceptibility to excitement, whereby, for instance, on the one hand paralysis, and on the other abnormal heightened sensibility, can be removed. In consequence of the very close reciprocal relations that exist between the nervous and the vascular system, and of the reflex influence that exists between the whole of the processes of resorption and nutrition, very favourable curative results have been attained by means of the application of electricity, and especially by the application of the galvanic current in conditions of improper division of the blood, of disturbance of the circulatory system, in inflammatory rheumatic and gouty troubles, in exudations from internal and external new growths, and in conditions of bodily weakness, etc. Electro-therapeutics have proved particularly

injured by such conditions as those described above, for the proper and expert application of electricity to curative treatment is entirely beneficent, and without any pain whatever.

effective in certain forms of general nervous diseases, in cramp, convulsions, and in conditions of fear. In cases of neuralgia in particular nerve regions, as well as in nervous gouty pains, in paralysis, in disturbances of the power of movement of the arms and legs, in cases of hypochondria, hysteria, etc. It is unfortunately impossible for me to say more on the subject under consideration on account of the limits of space set me in this book. I will only, in conclusion, emphasise the point, that one must not attempt to find the secret of the result in the strength of the galvanic or the Faradaic current, one may rather, by the application of too powerful a current, do injury, and produce an over-irritation of the nervous system in the form of paralytic conditions of movement and sensation. Indeed, one may even produce decomposition of organic structures.*

Many constitutions have a pronounced antipathy (idiosyncrasy) to the application of electricity. They become excited, fearful, and restless, as soon as even they are in an atmosphere containing an electric current. This proves that electro-therapeutics are as little to be considered a universal curative method as is any other, although many a loudly-shouting electropath would, for pecuniary reasons, wish to stamp it as such (p. 562).

Electrical Bath. (See Index.)

Electro-Homœopathy is, in the opinion of its adherents, the most perfect form of homœopathy. (See under that head.) It has, in common with the fundamental principles of the Hahnemann system of homœopathy, that like cures like (*similia similibus curantur*), the principle of specifity, the use of small doses, etc. It is distinguished from the older

* The following principles must be observed in the application of electricity: A current must never, at any rate at the beginning of the treatment, be applied with too great strength, since the patient may be frightened or excited by too violent a shock. That current is generally sufficient in its strength which produces a gentle pricking and burning of the skin, as well as slight contraction of the muscles. The electrodes must only be used in the neighbourhood of the eyes and the brain, with the very greatest caution, and then only for a short time. For the galvanic current one should use larger electrodes than for the Faraday's current, because one can, by these means, produce a longer and relatively more effective current with less pain. A sitting should not last over two to two-and-a-half minutes. Three to four sittings a week are generally sufficient in chronic cases. After from four to six weeks' treatment, one should make a pause of from two to three weeks, and then resume the treatment.

homœopathy, in the first place, by the fact that it rejects the maxim that for the cure of every disease only single or several special medicinal agents in alternation are to be used, because this principle is not, they say, to be brought into harmony with the laws of nature. Apart from quite simple maladies, the removal of which is possible by the original homœopathic treatment, the theory of electro-homœopathy insists that, in view of the composite nature of most diseases, there are groups of symptoms corresponding with groups of medicinal agents which must be used to counteract them if a prompt and radical cure is to be attained. In short, the principle "*complexa complexis curantur*," in English, "complex must be cured by complex," has taken the place in the electro-homœopathic principle, "*similia similibus curantur*." The curative effect of natural mineralwaters, say the electro-homœopaths, consists in the fact that in them are combined into a unity, groups of minerals.

The second most material point in which electro-homœopathy differs from homœopathy is in the way in which its medicaments, or medicinal agents, are prepared. In homœopathy, pulverisation and attenuation rule; in electro-homœopathy, on the contrary, development of strength, through the natural process of decomposition, is the rule. Electro-homœopathy combines certain groups of heterogeneous raw materials, of which it makes use for curative purposes, into such a close combination with each other, that not only do they maintain their curative properties, but also their properties for the exercise of the electrical power, in order that they may act upon the human organism as electricity does, by exercising a single and heterogeneous effect. Such a raised development of power is said to be brought about by the natural process of decomposition, by which the agent of organic electricity is developed.

Elephantiasis is the name given to an eruption of a nodular form, by which the portions of the body affected seem to be covered with a skin like that of an elephant. The legs, the feet, the arms, the scrotum, the male organ of generation (penis), the labia pudendi, the clitoris, the female breasts, the muscles of the ear, are the most frequent sites of this malady. Simultaneously with this disease, the parts affected increase in their circumference, and the skin of the part on the cellular tissue beneath it increases to an enormous extent. In this condition the skin becomes lumpy, and there

are formed on it a number of either dry or weeping warts. The attacked portions of the body are often thickened to double or three times their original extent. In tropical or sub-tropical countries (Brazil, East India, West Africa, Arabia, Egypt, and so forth) elephantiasis is a national plague. It appears only sporadically in all lands, most frequently, however, in France and Ireland. The causes of this disease are generally repeated inflammatory processes of the skin, particularly of their blood vessels and lymph vessels. The inflammation generally begins in the form of a red rash accompanied by signs of fever, and when it is often repeated, it attacks the soft parts and the bones that lie beneath the skin, and finally, in the course of a period of from four to ten years, produces the symptoms and distortion of the special parts of the body above described.

The treatment must, in the first stages, be a local and antiphlogistic one (that is to say, the treatment calculated to counteract inflammation), soothing fomentations at from 73⁰ to 77⁰ F. must be continuously applied, in order to reduce the inflammation, in alternation with stimulating fomentations at from 68⁰ to 72⁰ F., to aid in the absorption; one should apply local vapour, for the purpose of aiding subdivision, and at the same time should adopt the General Strengthening or Tonic Treatment. If, however, the disease is already of long standing, then seek, by means of an energetically carried out massage cure, to attain the absorption of the serous exudation. At the same time, however, the General Tonic or Strengthening Treatment should be applied. In many cases the application of the lowering cure is also indicated. Never omit in the treatment to consult a thoroughly-experienced Natural Treatment physician.

Elimination, Treatment for. (See Index.)

Emphysema, in the widest sense of the word, is the name given to a swelling which has arisen through the penetration of air into the tissues. In its narrower sense emphysema is the name given to a morbid enlargement of the vesicles of the lungs, by which they lose their elasticity or power of tension. (For more on this subject, see under the heading "Lungs, Enlargement of the Vesicles.")

Enemas. (See Index.)

Enema Apparatus. (See Index.)

Enlargement of the Veins. (See "Veins, Varicose.")

Enteritis. (See "Intestine, Catarrh of the.")

Enterocoele. (See "Rupture.")

Envelopment Entire (Kneipp's System). (See Index.)

Epilepsy, Falling Sickness. — Epilepsy represents a chronic disease shown in muscular convulsions or cramp, and at times unconsciousness. The site of the disease is without doubt the nervous system. At the same time, medical science has up to the present day not succeeded in finding out the true cause of the disease (which unfortunately is of very frequent occurrence), except in so far as the fact goes that the hereditary or at least congenital predisposition to epilepsy has been established. This can be proved with regard to about a third of all cases of which one has had experience, where it is shown that one or both parents, or even grandparents, have suffered, either from epilepsy or from some other disease of the nervous system, such as neurasthenia, hysteria, or some form of brain disease.

The children of drunkards, or such children who were conceived when one or both parents were intoxicated, are epileptic. Bodily and mental overwork, sudden fright, fear, grief, excesses, infectious diseases, constitutional complaints, such as poverty of the blood, chlorosis, scrofula, rickets, syphilis, etc., injuries to the brain, new growths, pathological alteration in the brain, irritation of the peripheral nerves consequent upon injuries to the brain, etc., are immediate impulses which favour the outbreak of epilepsy.

Both sexes are equally liable to be attacked by this disease, which is most common up to the end of the growing period. Nevertheless, the disease often arises even after the twentieth year of life. The disease itself is shown by convulsive seizures, with longer or shorter intervening pauses, during which the patient feels himself tolerably well in health. The seizure may arise suddenly, or may be preceded by certain premonitory symptoms. The more remote symptoms are generally excitability, irritability, morbid desire to sleep, or morbid sleeplessness, weakness of the memory, apathy.

After seizure these symptoms vanish again altogether. The immediate premonitory symptoms, which take the form of an alarm signal, are the so-called "aura epileptica."

It intimates its presence in the most various ways; the patient feels a cold draught of air as it were rising from the lower extremities right up to the head, or, in the same manner, he may feel a rising sensation of warmth; in either case the

patient feels a sensation of irritation or of pricking, or a kind of creeping of ants on the skin, abnormal sensations of cold, drawing pains in the genitals, pressure under the region of the heart and of the stomach, violent palpitation of the heart, and so forth; or he may suffer from disease of the senses, such as the seeing of sparks and flickerings before the eyes, the hearing of sounds and murmurings in the ears, twitchings of the features, a feeling of fulness in the head, giddiness, and often hallucinations, in which he seems to see horrible human or animal shapes. Many patients complain about special and peculiar sensations of smell and of taste, have a considerable inclination to vomiting and choking, as well as drawing, murmuring sounds in the abdomen, or they may temporarily lose the power of speech.

The immediate premonitory signs last, as a rule, only a few seconds or for a few minutes. If the sufferer can only gain time to lie down, then these symptoms pass away without bringing on a seizure; if, however—and this is generally the case—the seizure takes place, it is characterised in the following way: the sufferer falls unconscious, at the same time uttering a piercing cry; in most cases he falls forward, more rarely on the side or backward. Then there is a convulsive and spasmodic stretching of all the limbs, in which the thumbs of both hands are spasmodically clasped by the fingers. At the same time the head is convulsively drawn backwards, the mouth tightly closed, and the teeth clenched; the eyes are fixed, wide open, and, as a rule, turned upwards; the face is pale and distorted, the veins of the throat swollen, and the breathing is suspended, so that the face becomes livid. After an interval of about a third to half-a-minute, rigidity of the whole body follows, then more or less violent twitching (clonic cramps), by which the whole body is shaken. The muscles twitch violently, the tongue is convulsively projected and again drawn in, whereby it is often injured by a bite; the eyes have a frenzied appearance, and the head strikes the couch on which he is lying, repeatedly. As, during a seizure, the muscles of the pharynx and of the larynx are convulsively drawn together, the saliva in the mouth cannot be swallowed, and consequently comes out of the mouth as foam; the muscles contract, and the thumbs are at the same time attacked by violent twitching. During the paroxysm, evacuations sometimes, both from the bowels and the bladder, take place involuntarily. The pulse

during the seizure is generally small and irregular, sometimes barely perceptible. The seizure generally lasts only a few minutes, and then ends suddenly or gradually, the patient giving a deep sigh, or sometimes vomiting. The skin is, at the end of the seizure, covered with a cold clammy perspiration, and the patient falls into a deep sleep, which lasts for several hours, accompanied by heavy breathing or snoring. If the patient sleeps only for a short time, or if any one wakes him up, he looks round with a troubled look, and does not know what has happened to him. His only wish is to go to sleep again. The patient during the next few days feels very exhausted, is excitable, forgetful and irritable, and has a confused head and pains in the limbs. In some cases paralytic phenomena follow a seizure. These very rapidly pass away, although now and then they may remain. Even symptoms of mania have been observed after paralytic attacks. A seizure in the night, in bed, is attended by considerable danger, both on account of the threatening feeling of suffocation, and on account of the risk of the patient falling out of bed and injuring himself. It is therefore advisable to have a protective railing round the bed of paralytic patients, like the railing that is round the cots of young children. In addition to the just (described pronounced form of epilepsy) there are several so-called imperfect forms of the disease in which it is of a slighter nature. The patient is suddenly seized with giddiness, totters, and may fall to the ground, but without uttering a cry; at the same time his face becomes pale, and slight twitchings run through his body. After a comparatively short time, the sufferer again comes to himself, and although somewhat troubled, can, after a few minutes, again resume his occupation, which has suffered an interruption through the attack.

In other cases the sufferer may perhaps not fall down at all, but his gaze becomes fixed, his conversation ceases, or whatever he is doing, is left. In a few seconds the patient is again quite conscious, and continues the conversation or occupation from exactly the point where he was interrupted, without having any suspicion that the interruption had taken place.

The seizures in cases of pronounced epilepsy take place at very regular intervals. With many sufferers years of unbroken good health intervene between the attacks, whereas in other cases there are intervals of only months, weeks,

days, or even hours. When this disease lasts for a long time, and the attacks are of frequent recurrence, the general health and mental state of the epileptic sufferer are in a very bad way. The patient becomes emaciated, weak, and generally relaxed.

The termination of epilepsy in cure is very rare indeed. As a rule, only those cases are curable which arise from constitutional diseases. Even the "Natural Curative Treatment" possesses no remedy that will completely remove the hereditary disease, and can only diminish the frequency of the attacks, and somewhat modify the injurious consequences. For this purpose the "General Strengthening Treatment" is most suitable, in which lukewarm baths and washings of the whole body, avoiding violent frictions of the skin; light and air baths and sun baths of short duration, mild reclining vapour baths, etc., are applied for the purpose of stimulating the action of the skin. During the carrying out of this treatment the patient should never be left unwatched, and his head should all the time be kept covered with a cooling compress. An epileptic patient must always be particularly careful to keep his feet warm, for which purpose foot vapour baths should be given, with subsequent washings of the feet at from 82° to 86° F. Also mild massage of the whole body, and massage of the head (Fig. 186), often prove useful and very effective in raising the general condition of the constitution. Laxative enemas at 77° F. may also be made use of, in order to keep the bowels open. The application of quite cold water in any form is entirely to be condemned. The patient should further avoid all over-exertion, mental or bodily; all overloading of the stomach, and, indeed, every kind of excess in dietary, and all sexual excesses. He should avoid all over-stimulating, irritating, or exciting influences, such as tobacco, wine, beer, spirituous liquors, coffee, tea, and peppery or highly-spiced dishes, etc. A marked and very advantageous conversion of his nerve and blood-life may be brought about by the adoption of a non-stimulating and mild diet, in which wheat, wholemeal bread, raw or cooked fruit, milk puddings, farinaceous foods, egg puddings, young vegetables, etc., should take the most prominent place. The epileptic should abstain from all boisterous pleasures, overheated rooms, etc., and should spend his time in cool, well-aired rooms when in the house, but as much as possible in the open air, avoiding over-fatigue through too much walking.

When an attack takes place there is not much to be done, except that one must make use of some precautionary measures to prevent the patient injuring himself by falling, also against the danger of suffocation. In the case of male patients, the collar and cravat, in the case of female patients, the corset, must be loosened. After an attack it is best to give the patient a complete washing over the whole body, at 77° to 82° F., and place him in bed with a hot water bottle wrapped in a damp cloth at his feet. I must warn those having care of epileptic patients against the proceeding, so beloved by the so-called scientific doctors, of stuffing epileptics with potassium bromide *ad nauseam* (four to six drachms a day). The result of this system of poisoning is found in such symptoms as trembling, weakness of the heart's action, morbid drowsiness, and excessive desire for sleep; weakness of memory, restlessness of the muscles, muscular weakness, and disturbances of the digestion; also impotence. If there be, indeed, any means at all of converting a case of epilepsy that is dependent upon constitutional disease, and which is still curable, into an incurable case, it is bromide of potassium.

Ergotism, Ergot Poisoning. — The signs of poisoning by ergot are as follows: Creeping sensations; itch, with painful contraction of the flexor muscles; giddiness, temporary blindness, convulsions; even rigid cramp pains, tension and pressure in the cavity of the heart, excessive hunger, suffocation, vomiting, diarrhœa, diminished urine secretion, cold feeling of the entire surface of the body, especially in the back and abdomen; short, slow pulse, an abnormally low temperature of the body, disquietude, cold sweats, etc.

When the course of the disease proceeds unfavourably, inflammatory decay of the affected parts, consequent upon interrupted circulation, takes place, developing into deadly pyæmia, or malformation through loss of tissue. In other cases an unfavourable course leaves the following bad consequences — epilepsy, paralysis, brain disturbances, etc.

For the elimination of the poison in the blood and juices, the treatment prescribed for blood poisoning and suppurating sores should be chosen. For the very troublesome creeping which is experienced in the fingers and toes, tepid full baths are soothing. For inflammation in any particular limb, the prescription given for "Inflammation or Erysipelas" should be applied.

The diet in any case should be plain, simple, and strictly vegetarian.

Eructation, Belching. — Caused by accumulation of gas, that is, wind in the stomach, which contracts and forces the wind through the gullet, and outward by the mouth. Certain foods and drinks frequently cause this (radishes, onions, effervescing drinks, etc.); the wind is often associated with a pappy, sour, rancid and bitter taste, and foods and drinks that have been taken often repeat.

This eructation is also found in other complaints, such as hysteria, hypochondria, etc.

If certain foods or drinks cause this belching, they should be avoided. A deranged stomach requires a strict diet, avoiding all fatty and irritant foods. Apply stimulating abdominal bandages, 40° to 45° F.; body baths, 45° to 50° F., etc. Otherwise the belching of wind is beneficial, and should not be suppressed, always having sufficient regard for those near us not to let the "explosion" be too loud.

Eruption, Purulent, or Pustular Eruption (Impetigo), is characterised by the appearance of scattered, single, mattery pustules on different parts of the skin, which have their originating cause in an infectious or constitutional general disease, such as is exhibited in the case of blood poisoning, true smallpox, carbuncle, syphilis, etc. The pustules generally come out with the accompaniment of feverish symptoms, then dry up to scabs and fall off.

The treatment must, in the first place, be directed to the removal of the primary disease. The local treatment is practically the same as that given under the heading "Eczema, Weeping."

Erysipelas represents a feverish infectious disorder, with skin inflammation, which spreads to different parts of the body.

Whereas, in former days, erysipelas was attributed to terror, excitement, cold, and other pathological causes, in the present period it is clearly proved that the complaint arises from contagion. Hence erysipelas is seen after operations where there is not perfect cleanliness; during the lying-in period, where the contagion has taken place in the uterus; after the vaccine inoculation; and in newly-born children who are infected by matter from an ulcerated navel.

The seat of the disease may be the head, face, foot, etc. Erysipelas of the mucous membrane also sometimes takes

place, especially in the nose, gullet, and female sexual parts. Erysipelas may spread to the other parts of the body; when this happens, it is known as "diffuse" erysipelas. Young people, and generally the female sex, are most susceptible. A single attack of the disorder does not exempt the individual from other attacks, on the contrary, it mostly creates a predisposition. Then there are certain individuals who always, after long or short intervals, will be the victims of erysipelas, often only from the effects attendant on a cold, which probably has slightly injured the mucous membrane of the nose, and in this way conveyed the poisonous matter into the system. My clinical experience shows facial erysipelas with the following symptoms: First, pain and tension of the skin, with feverish appearances, such as weariness, palpitation, loss of appetite, headache, pains in the limbs, and so forth. In other cases the disorder is ushered in by shiverings and chill, and in a few days develops skin symptoms, the febrile ones rising rapidly to 104° to 106° F. The skin, meanwhile, is red, swollen and irritated, smarting and shining, and is very painful on being touched. The reddened parts gradually assume greater dimensions, becoming redder and more swollen. The erysipelas extends to the head beneath the hair, thence to the nape of the neck, and in many instances on to the body and extremities, while wrinkles retard the spread of the face eruption, in proof of which a wrinkle in the forehead or nape of the neck is often the boundary line of the disease. In many cases the inflammation raises large or small vesicles on the skin, the contents of which also become inflamed. The skin generally heals in five or six days; the redness and swelling, leaving the skin, it becomes wrinkled and furrowed; the complexion is generally much more clear after than before the attack. Only in the most severe phase is there any deviation from this course. The fever condition ceases either suddenly, in a critical phase, or gradually, and this is usually the course in the most severe cases. The most prominent erysipelas symptoms are loss of appetite, dry burred tongue, sickness, constipation in alternation with diarrhœa, violent headache, hallucinations, insomnia, delirium, etc. The duration of the illness is one or two weeks, or longer. Among the results of an attack of erysipelas may be mentioned falling out of the hair (temporary), cutaneous ulcerations, inflammation of the vital organs, sometimes with ulceration; neuralgia, inflammation in the limbs, etc.

Treatment is in general accordance with that of fever treatment.

For drawing the blood from the head, throat and leg packs are applied.

In slight attacks of the fever, mild bed vapour baths should be used, and, in diffuse cases, whole baths, at from 104° to 108° F., may be used. In conditions of great excitement, severe headache, and so forth, soothing head bandages, at 68° F., well wrung-out (p. 502). The local treatment consists in applying almond oil, with a fine camelhair brush or on medicated wool, to the parts affected, open places being powdered with rice flour. Further details of treatment are supplied under "Wounds." The practice of laying ice upon the head is much to be condemned (p. 246), as also the belief in the power of "incantation," as it exists not only among the uncultivated, but the cultured also. As the "incantation" takes place when the fever is at its height, the crisis at which the bodily temperature should be lowered by hydropathy and the disease checked, such an idle theory cannot be too energetically opposed.

Exanthematic System of Treatment. (See "Baun-scheidt's Treatment.")

Excoriation. — When the epidermis is inflamed it becomes red and hot, having occasionally the appearance of raw flesh; it aches more or less, and secretes a red, watery fluid. The excoriation is generally between the thighs, and represents an irritation of the skin, caused by such exercise as long walking, or by riding on a hard saddle or high-stepping horse, the skin being easily irritated when it is continually rubbed while covered with perspiration. The delicate skin of little children is extremely liable to this inflammation. Such parts as the region of the seat, the inside of the upper thighs, the umbilical (navel) region, the armpits, behind the ears, etc., being principally affected.

Exercise, Advantages of Physical. (See Index.)

Exercises, Bodily. "Simple Active Movements of the Curative Gymnastics." (See Index.)

Exhaustion. (See "Lassitude, Weakness, or Strength, Loss of.")

Exophthalmia. (See "Eye, Diseases of the.")

Exudation is the name given to the excretion of gaseous or watery substances in smaller or larger cavities of the

human body. An exudation takes place in the course of inflammatory processes, in which the functions of the blood vessels are stopped, or when they are morbidly changed. (See also "Sweating.")

Eye. — The eye is a round organ, and therefore called "eyeball" (bulb). It is composed of various membranes, forming cavities filled with different liquid substances. The eyeball is protected externally by the lids, and by means of the tear ducts is kept clean and moist. It is moved at will, in all directions, by different muscles, surrounded by a fatty layer and connective tissue; it lies in a bony cavity, open at the back and front, called "the orbit." The lids consist of upper and lower, the first formed by a continuation of the skin of the forehead, the latter by a continuation of the skin of the cheeks. During the waking period there is an opening between the two lids; where the skin of the forehead reaches the upper edge of the orbit (supra-orbital ridge) there is a streak of hairs, the eyebrows. The edges of the lids have two to three rows of hair, the eyelashes. The lids are for the protection of the eyeballs externally, and also assist in the equal distribution of the tears, prevent the upper part of the eyeball becoming dry, and act in a soothing way on the nerves of the eye by closing and keeping the light from them. The opening between the upper and lower lid is closed by the action of the various muscles of which the eyelids are chiefly composed. These muscles are grouped circularly around the opening of the eye. Behind the eyelashes we have secretory organs, the Meibomian glands, they give out a fatty substance, which, by greasing the lashes and edges of the eyelids, prevents the tears from running over. These Meibomian glands (of which there are about thirty or forty in the upper, and twenty or thirty in the lower lid) sometimes become inflamed, and form what is commonly known as a "stye." The junction of the upper and lower lid is called the "corner," or "canthus" of the eye. There is an inner and outer canthus. The tear fluid is secreted in the lachrymal gland, situated just above the outer canthus of the eye, in a depression in the wall of the eye cavity. The tears run over the front surface of the eyeball to the inner canthus, where there is a depression for the accumulation of the tears. Tear fluid is clear, colourless, alkaline, and has a salt taste.

The eyeball, as I explained at the beginning of this, is a round body filled with fluid, and is formed by three mem-

branes of different construction lying concentrically around it. The outer membrane consists of the sclerotic and cornea, the second of the "choroid" (composed nearly wholly of blood vessels) and the iris; the third consists of the retina. The first or outer membrane, the sclerotic (Fig. 370c), forms the greater part of the outer and posterior covering of the eyeball. It is a tough membrane, almost devoid of nerves and blood vessels, non-transparent, and the colour of white

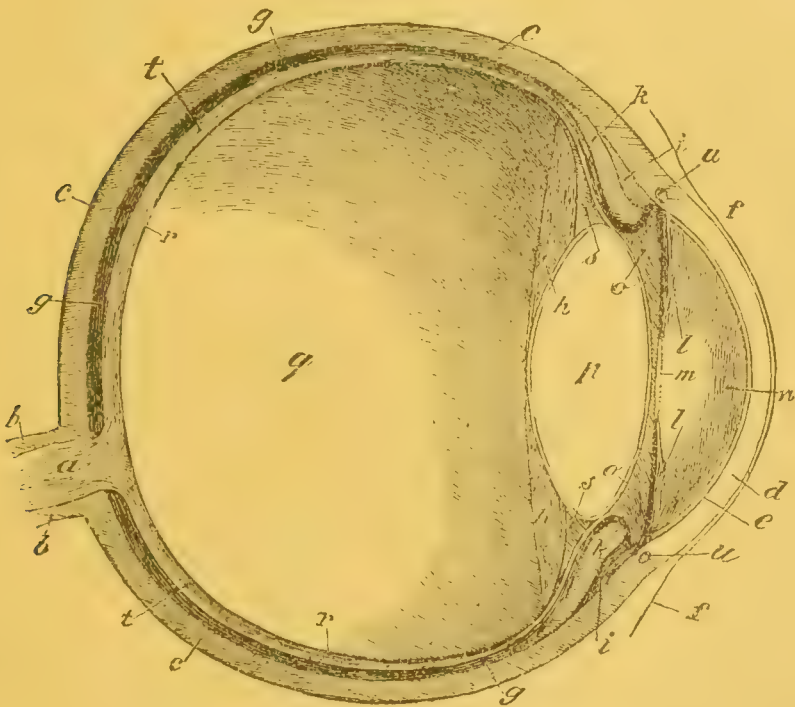


Fig. 370. Structure of the Eyeball.

mother-of-pearl. It is entered at the back by the optic nerve (Fig. 370a), which spreads out into the membrane; anteriorly, the muscles of the eye are attached to it. When the eye is open the anterior part of this membrane is seen, more particularly at the corners of the eye, or when the eye is turned, and is known as the "white" of the eye. The "cornea" forms the anterior portion of the sclerotic, and is a tougher and transparent membrane (Fig. 370d). Its position is similar to that of a watch glass over a watch face. This membrane gives the eye its lustre, is very destitute of blood vessels, joins the

sclerotic at the back, and may be said to represent the window of the eye. The front of the "cornea" is covered by the "conjunctiva" (Fig. 370f), the posterior surface by the membrane of the "aqueous body" (Fig. 370e) which is connected to the water-filled anterior chamber of the eye (Fig. 370n).

The second or middle layer, "the choroid" (Fig. 370 g), forms a hollow globe, flattened at the front, and having a circular opening, "the pupil" (Fig. 370 m). It consists of two dark-coloured parts, well supplied with muscles, blood vessels and nerves, the "vascular" and the "iris." This "choroid" is essential for the nutrition, movements, and darkening of the inner parts of the eye. The back part of the vascular portion, which is also pierced by the optic nerve (Fig. 370 a), is intimately connected to the sclerotic, and extends to the front as far as the edge of the "cornea;" here the "vascular" membrane joins the ciliary muscle (Fig. 370 i), and forms the ciliary process (Fig. 370 h), consisting of about seventy processes (Fig. 370 k), the use of which is to retain the lens in position. Where the "choroid" joins the "sclerotic" membrane, and where this joins the "cornea," a canal runs in circular direction round the wall of the eye. This canal, filled with lymph fluid, is called the canal of Schlemm (Fig. 370 u.) Here we see the "iris" (Fig. 370 l) behind the "cornea," and in front of the lens surrounded by the ciliary processes (Fig. 370 p). In the centre of the "iris" is the "pupil" (Fig. 370 m). Seen through the "cornea," the "iris" appears as a grey, blue, greyish-blue, grey-green, or brown ring, which encircles the pupil. The iris divides the space situated between the lens and "cornea" which contains the aqueous humour of the eye into the anterior (Fig. 370 n) and the posterior chamber of the aqueous (Fig. 370 o).

The third, or innermost membrane, is formed by the "nervous portion" (Fig. 370 t), the continuation of the optic nerve (Fig. 370 a) and the ligament of Zinn (suspensory ligament of the lens). The innermost membrane also represents a hollow globe, with an opening for "the lens" in front, and surrounds the greater and posterior portion of the "vitreous body" (Fig. 370 q). During life it is quite transparent, and shows a purple-red colour. The "vitreous body" of the eye (Fig. 370 q), which represents a clear, translucent globe, is situated behind the "ciliary processes" and the "lens," in a space surrounded by the retina, and in front receives the lens in a circular depression. The coating of membrane

investing the outer surface of the vitreous body is called the "hyaloid" membrane (Fig. 370 r). The so-called canal of Pettit (Fig. 370 s), and the already-mentioned canal of Schlemm (Fig. 370 u), serve to convey the aqueous humour from the "iris" and ciliary processes of the "choroid" to the anterior and posterior chambers of the eye.

The "suspensory ligament of the lens" lies immediately below the ciliary processes, reduplicating its shape. It extends from the anterior edge of the "choroid" to the edge of the capsule of the lense.

The "retina" is $\frac{1}{150}$ to $\frac{1}{75}$ of an inch in thickness, and consists of ten layers. It is continuous behind with the optic nerves.

We find in the eye an apparatus for the "splitting up" and "appreciation" of light. The first is formed by that part of the eye which constitutes a hollow space, and is filled with a clear, transparent, in some parts thin, jelly-like, and in other parts watery fluid. It consists of the "aqueous humour" (a watery fluid) contained in the anterior and posterior chambers of the eye (Fig. 370 n and o); the crystalline (Fig. 370 p) and the "vitreous body" (Fig. 370 q). As the "vitreous body" is covered at the back (inside) by the "retina" (Fig. 370 t), all rays of light which penetrate and are diffused by the "vitreous humour" must fall on the "retina," which, being partly constituted as a continuation of the optic nerve (the nerve of sight), (Fig. 370 a), fulfils the function of "the appreciation of light" commonly called "sight."

Eyes, Bath for the. (See Index.)

Eye, Care of the.—In view of the highly-developed specialisation that has grown up in ophthalmic medicine and surgery, it is no wonder that the public—always ready to follow what they think is the teaching of authority—should have acquired the mistaken idea that the eyes are only a separate part of the human bodily machine, and require an entirely separate and purely local treatment, both in health and in disease. The easy-going habit of doing that which gives least trouble, and the pleasure of finding an excuse for it, accounts for this mistaken idea, and also helps the speculators who make fortunes out of the manufacture of quack "eye waters," and other charlatanry, by giving them a basis for their arguments and their puffs, for nothing is easier than, in the case of an apparently local trouble, only

to apply merely local remedies, and to expect wonders to be worked by them.

The care of the eyes must be based, in the first place, upon a rational general care of the whole body, for the eye is a part of our body which, like all the other organs, stands in the closest reciprocal relation with the organism as a whole, and with all its several parts. Indeed the organ of sight, being such a complicated one, is perhaps more closely connected with the general physiological processes than is any other. The large number of blood vessels it contains make the eye part of the vascular system (that is to say, make it one of the organs that one has to consider in treating of the veins, arteries, and other parts of the body), whose chief object is to help in the circulation of the blood. Through possessing such a large number of skins, membranes, and integuments, it has to be reckoned as a very important part of the dermal organ (the skin as a covering and excretory organ), and by reason of its nerves of sight it is a part of the nervous system, especially of the brain. For this reason it is that the eye reflects with such accuracy the general bodily condition, as the celebrated Hungarian physician, Poczely, has demonstrated by means of his discovery, "Eye Diagnosis." (See under this heading.)

If one is to take proper care of the eyes, it is necessary to keep in order not only the vascular system, the dermal system, and the nervous system generally, but also the entire system of assimilation and conversion — the entire mechanism of the conversion of food into new material for the growth and development of the body. How this is to be done is taught in the first section of my book, that entitled "The Science of Health."

Eye Diagnosis. — Eye diagnosis, according to a homœopathic physician, Dr. Ignaz, is the estimation of an individual's state of health by the external appearances of the "iris." This system of diagnosis enables us to detect hereditary disease, internal injuries, and, more especially morbid changes internally; also, by finding the predisposition of the individual, to guard against disease.

Eye Diseases. — If I were to attempt to describe the vast number of different kinds of diseases of the eye which exist, arising from other causes than purely inflammatory conditions; their causes and their course; and also to describe fully the Natural Curative Treatment that they indicate,

this would require a book devoted to this one subject alone. I must therefore confine myself to the discussion of the most common eye diseases.

Ægilops, Stye, is the name given to a disease of the eyelid, an inflammatory swelling of a hair follicle of the eyelash, or of the sebaceous or ciliary gland. The inflammation is characterised at its beginning by a reddened swelling of the palpebral margin, or edge of the eyelid, which, in the course of a few days, forms a head filled with a yellowish matter. This head of matter, which soon comes to maturity, and breaks under the application of stimulating fomentations of from about 36° to $40\cdot50^{\circ}$ F., exudes a somewhat thick and tough pus, after which the opening closes and rapidly heals.

The causes of "stye," which is really an exhibition of the formation of boils on the eyelid, are, for the most part, to be sought in a combination of a scrofulous and a gouty decomposition of fluid, to which comes, as the immediate impulse to the outbreak of the disease, the irritating action of some mechanical influence.

A transformation of the fluids of the body by the "General Strengthening Treatment," or through a modified and mild form of treatment by lowering diet, will also remove the disposition to the formation of stye. (See also under the rules for cure, in the next article.).

Basedow's (or Grave's) Disease, Exophthalmic Goitre. — The standing out of the two eyeballs beyond the orbital cavities is called exophthalmic goitre, or, after the name of a Magdeburg physician who first observed it, Basedow's Disease. (In England it is also named after an English medical man who first observed it in this country, Grave's Disease.) It generally arises from an inflammatory affection, or a paralytic condition of the sympathetic or ganglion nervous system, and attacks principally anæmic, or chlorotic and neurotic young persons between fifteen and twenty-eight years of age, especially young girls suffering from disturbances of menstruation. It comes on gradually, or sometimes, but only in rare cases, suddenly, and generally runs a chronic course, often protracted for many months and years, and is characterised by violent palpitations of the heart, by a remarkable swelling of the thyroid gland, and, as I have already remarked above, by a strongly-marked and excessive prominence of the eyeballs beyond their sockets.

The disease is also frequently developed after violent and lasting emotional disturbances, after injuries to the head, after continuous and weakening causes of any kind, as, for instance, after long suckling, etc., and is, in its course, accompanied by a large number of other symptoms, as, for instance, by abnormally quickened pulsation in the vein of the neck, the abdominal vein, the femoral vein (vein of the thigh) and the brachial artery; by excessive sweating, by excessive flow of tears and saliva (ptyalism), by bleeding from various organs, etc.

The local treatment should consist of a gentle daily massage of the eyes, neck, and nape of the neck; eye douches of 60° to 65° F., given five or six times daily, and in the putting on of compresses, at a heat of from 68° to 75° F., on the eyes, to be kept on during the night.

The general treatment is, however, the chief thing, and has to be directed to a removal of the primary cause, to the improvement of nutrition and the strengthening of the nervous system. For this purpose the rules for general tonic cure are to be followed, and one must begin with a complete bath at a heat of 68° F. every morning; also once every day the patient should be given either a complete bath at 77° F., or a hip bath at 75° F., or trunk baths at 74° F. Massage of the whole body should be applied every other day, and the patient should live in light, and in the direct rays of the sun, and in good air full of oxygen, etc. In the case of women it is also essential that they should take care to bring about the restoration of normal conditions of menstruation.

Excessive palpitations of the heart should be treated by compresses at 65° F. on the nape of the neck (shawl), and heart compresses of 62° F. should be applied.

Cataract, Black (Amaurosis), or the wasting of the nerves of vision, is shown by a gradual diminution of the power of vision until total blindness supervenes. The patient can no longer distinguish between light and darkness. The first symptoms (which generally appear in both eyes at the same time) consist of the seeing of colours when the eyes are opened, in the diminution or deprivation of precision of vision in bright light, and in the seeing of colours and sparks when the eyes are shut, and so forth. Gradually small objects come to be seen only indistinctly, the sight becomes less and less clear, the colour phenomena pale, until, finally,

total night is before the eyes and blindness has set in. At the beginning of the malady the pupil appears black and contracted, the cornea brilliant, and everything which tends to produce hyperæmia of the head (or a pressure of blood in the head), such as strong emotions, constipation, cold feet, stooping down, etc., tends to hinder the clearness of vision. The causes of black cataract lie partly in the brain, where tumours exercising a pressure on the nerves of sight bring about their death; partly black cataract is one of the sequelæ of general illness, or of some other special disease, such as syphilis, or maladies of the spinal marrow, etc. But other diseases of the eye itself, inflammatory processes of the choroid membrane, of the retina, of the nerves of sight, as well as diseases and engorgement of the veins in the abdominal organs, etc., may bring about black cataract.

The treatment must, in the first place, be directed to the removal of the primary disease. At its beginning, and in cases of not too long standing, one may apply a modified lowering cure, while, with delicate patients, it is advisable to adopt the General Strengthening Treatment, in which massage of the eyes, neck, and nape of the neck must be daily applied, and there must be also eye douches twice or three times a day, while there must be also two or three shower baths for the head every week, as well as one or two complete shower baths.

Cataract, Green (Glaucoma), on account of the green colour of the pupils of eyes affected with this disease, is characterised by the following symptoms: The premonitory symptoms, which occasionally show themselves in some cases many years even before permanent glaucoma really sets in, consist of violent headaches, foggy vision, the seeing of coloured lights or of flames of light, and in being deprived of the capacity for adjusting the sight to seeing near and distant objects. Hand-in-hand with these premonitory symptoms there is generally a loss of power of sight in reading and writing, etc.; the eyeball feels indurated or hardened, and the pupil is often somewhat dilated, and is restrained in its movements. The course of the disease, however, may be a very rapid one, both eyes, which before seemed to possess perfectly normal vision, entirely losing their sight within a few hours. While the patient is suffering the acutest pain, and while the eyeball is becoming

rapidly harder, the cornea becomes opaque, the pupil immobile and distorted, the conjunctiva red, the iris colourless, the vitreous body of the eye opaque, and the power of vision is entirely lost. The now perfectly blind eyeball has become hard as stone, and the pupil so broad, that only a narrow strip of the iris is visible. This condition is seldom confined to one eye, but very shortly after one eye has been attacked the other is overtaken with blindness. If glaucoma is not quickly removed by proper treatment (an operation is generally desirable), it usually results in absorption of the eyeball, by which this organ gradually becomes softer and softer, collapses, and finally is quite shrivelled up. The operation consists in cutting out a portion of the iris. The excessive tension in the interior of the eye is thereby toned down, the pressure on the fibres of the optic nerve is relieved, so that they can again fulfil their functions.

If glaucoma is recognised in its premonitory stages, or quite at the beginning of its development, the "General Tonic and Strengthening Treatment" (see under this head) should be adopted, and with this should be combined massage of the head, eyes, neck, breast and back, as well as eye douches and head baths. Above all things, however, one must seek to draw the blood down from the head, and to regain a normal distribution of the blood by means of walking barefoot, walking in water, walking barefoot on wet stones, cold foot baths, cold knee, thigh, and arm douches, vapour baths to the feet, night stool vapour baths, small cold enemata, hip baths, sitz baths, trunk baths, etc.

Cataract, Grey, is a very ancient and popular name. It is a partial or complete opacity of the lens, which, together with the cornea and the vitreous humour of the eye, serves for the breaking or refraction of the rays of light that fall upon the eye. (See Fig. 370). The lens is by far the strongest reflecting optical medium of the eye, and in its normal condition is perfectly clear and transparent, in order to be able to transmit to the nerves of sight all the rays of light that fall upon the retina. The chief cause of opacity of the lens is generally to be sought in a morbid condition of the whole organism, and in disturbances of the nutritive system. It is especially constitutional troubles, such as gout, diabetes, and so forth, that are the cause of grey cataract; injuries and inflammations of the eyes, such, for instance, as are caused by metal splinters being forced into

the eye, inflaming the lens and its tunic; old age; the so-called change of life, etc., may, however, also produce this malady.

The opacity of the lens may be point-shaped, or some other form. It may attack small portions of the edge, or the middle of the lens, or may permeate the whole of the lens tissue. It may be confined to one eye, or may extend to both eyes. As a matter of fact, cataract always, in the end, attacks both eyes, but the second eye often does not begin to be affected until the malady in the first eye has reached the highest stage of development. At the commencement of the disease the patient only complains of seeing all objects looked at as if through a veil, or surrounded by fog, and only quite gradually, and after months or even years, does complete blindness set in. When the lens tissue has become so opaque that the rays of light can no longer penetrate at all, the cataract is said to be mature. Cataract seldom arises, as the result of internal causes, at an earlier age than forty-five. Generally, however, the patient is attacked in his fiftieth or his sixtieth year.

Retrogressive metamorphosis of grey cataract is only possible after a complete conversion of the fluids or humours of the body, and, indeed, the most proper means for bringing about this result are afforded by Schroth's "Lowering Cure" (see under this head in the Index).

In the case of persons of very advanced age, and in that of children in whom grey cataract is congenital, recourse must be had to operative surgery, which affords the only means of giving help, and of making the way for the re-entry of light to the nerves of sight. The operation consists in the extirpation of the lens and of the lens-capsule, by means of which the rays of light are again afforded access to the retina. If proper care be taken, and the patient also exercises proper restraint, the wound of the eye heals very rapidly, generally within from twelve to twenty-four hours. Certainly, after the operation, a very high degree of far-sightedness is noticed, for the correction of which the patient has to make use of two pairs of spectacles, with so-called convex lenses.* The one pair of spectacles, that with the weaker lenses, serve for looking at distant objects, for the eye, through the loss of the lens, has been deprived of the power of adjusting the sight to objects near at hand.

* Convex lenses have a spherical raised curve on both sides.

Catarrh of the Eye (Acute). (See under "Eye Diseases: Inflammation of the Eye.")

Catarrh of the Eye (Chronic). (See under "Eye Diseases: Inflammation of the Eye.")

Catarrhal Ophthalmia (Blennorrhœa). (See "Eye Diseases: Inflammation of the Eye, Acute.")

Cornea, Blemishes of.—These are formed after a neglected cure of larger corneal ulcers, which, penetrating deeply into the cornea itself, have left opaque spots in the form of scars. The blemishes appear of all shapes, and may interfere with the power of vision more or less, according to their proximity to or distance from the pupil. It is only by a strictly modified lowering diet, preceded, in the case of delicate patients, by a tonic cure, that these blemishes can sometimes be got rid of. One must take the utmost care never to omit a very thorough eye massage treatment, and patients should also take head baths. (See p. 543).

Corneitis, or Inflammation of the Corneous Tunic, may arise in various ways, as sequelæ (or the after results) of conjunctivitis, or ophthalmia; or, independently, as a consequence of external exciting influences; from a cold, from scrofula, from measles, from scarlet fever, typhus, smallpox, etc. This malady can be recognised by a great reddening of the eyes, particularly in the cornea, which, in a healthy condition, should be white; through the formation of small yellowish or greyish-white, point-like, or gravel-like vesicles; small pustules or small ulcers on the cornea; by blepharospasm (spasm of the lid), great photophobia, and intense pain. In its more advanced stages this malady leads to disturbances of the power of vision, more or less complete, even to the extent of total blindness.

In the treatment the chief thing is to keep strictly to a non-exciting diet, with the strictest avoidance of every kind of animal food, and alcoholic drinks, tea, coffee, etc. For the rest there must be a somewhat lowering dietary, and alternative treatment combined with the general mode of anti-phlogistic local treatment described under the heading of "Eye Diseases: Inflammation of the Eyes."

Robust patients should be given, for instance, in the forenoon, a hip bath of from 45° to 53° F., accompanied by strong friction of the whole cutaneous surface, and water should be poured over them until the skin becomes thoroughly red; then should follow a pack for the whole body, with an

extra compress for the throat and the nape of the neck. After the pack the patient is subjected to a powerful damp massage, followed by dry massage. At night the patient is given a stimulating trunk and leg pack. During the day, one to two relaxing enemas should be administered, followed by a small cold one. (See also the history of a case given on p. 361 et seq.

Day-blindness.—People suffering from day-blindness have very weak sight by day, and their sight is weaker in proportion as the day is brighter. At night, such people can see better than by day; in fact, they can see much better at night than healthy people can with normal eyes. This malady is, however, generally accompanied by other diseases of the eye, and disappears as soon as they are cured. It is a very curious fact, however, that this peculiarity of vision is hereditary as a permanent condition among a certain race of people, namely, the Kakerlaken.

Floating Bodies or Black Specks, etc.; Muscæ Volitantes (Mouches Volantes).—A condition of the sense of sight is often observed in which the patient sees before his eyes, either at a greater or less distance, a number of small bright or dark spots, or sparks, or points, strings of pearls, etc., which remain immoveable in one place, or fly about in forms of gnats or flies. Sometimes these spots come and then soon disappear, or they may remain a considerable length of time before the eyes. This phenomenon is generally the result of organic disturbances, especially of some disturbance arising from hyperæmia (excess of blood), or of excitable conditions of the abdominal organs, the kidneys, the liver, or the portal venous system, etc. As a consequence, the retina of the eye is irritated, and through reflex action its functions are disturbed, and thereby the patient comes to perceive these forms of gnats or flies. The malady may, however, take its origin in morbid conditions of the two nervous centres, the brain and the spinal marrow, or in conditions of partial paralysis of the retina of the eye, or from over-exertion of the eyes, etc.

The treatment must, in the first place, be directed to the removal of the primary disease. One must take care that the patient's bowels are regular, and that he takes an easily-digested and non-exciting diet. The patient must also take plenty of exercise in good pure air, and must avoid all exciting drinks. He should also take two or three hip baths,

and walk much barefoot on damp grass. At night he should have a stimulating abdominal fomentation and stimulating packs on the calves. The eyes may be strengthened by cold douches and drawing away, back and nape of neck massage, as well as by the Cycle Movements No. 3, in the Simple Active Movements of Medical Gymnastics.

Gonorrhœal Ophthalmia arises in consequence of a transference of the gonorrhœal poison to one or both eyes. This is very dangerous; it may lead to total blindness. The symptoms are inflammation, reddening and swelling of the eyelids, and the secretion or formation and exudation of mucus and matter. Generally, in fact, all the symptoms are present which I have described in treating of "Inflammation of the Eyes in New-born Babies." The eyes must be bathed in water of from 65⁰ to 68⁰ F., and in the intervals between bathing them they must be covered with, alternately, cooling and stimulating bandages, or compresses, which must be changed the moment they become hot. One should also lay stimulating fomentations on the throat and nape of the neck, and take daily one or two stimulating whole or three-quarter packs, and foot baths, sitz baths, and friction sitz baths, in order to draw down the blood. At night application should be made of the abdominal and calf packs. In order to avoid self-infection, persons affected by gonorrhœa must always be warned never to touch the eyes or other exposed portions of the skin and free or exposed mucous membrane with fingers that have been rendered unclean by contact with the matter.

Inflammation of the Eye, Acute. — Acute inflammation, or catarrh of the eye, either affects the mucous membrane of the lid, the conjunctiva of the lid, or it may develop in the conjunctiva covering the eye ball. Although the catarrh may be due to a variety of causes, as, for instance, foreign bodies in the eye, causing mechanical irritation, or acting chemically, yet the most frequent cause of catarrh of the mucous membrane of the lid is "taking cold."*

The first symptom of the disease is slight itching in the inner or outer angle of the eye; the eye feels dry and hot,

* Inflammation of the conjunctiva (conjunctivitis) is not infrequently caused by gonorrhœa; this is called "blennorrhœal ophthalmia," and may, by spreading to the cornea, destroy the sight in a few days.

and when closing it there is a feeling as though a foreign body, sand or dust, were in the eye, and causes the patient to rub. These symptoms are followed by pain, burning in the eye, heaviness of the lower lids, flow of tears, etc. The flow of tears after a time ceases, and thin matter begins to come away, which becomes thicker. The matter accumulates in the angles of the eye, dries during the night, and clogs the lashes, edges and angles of the lid, making the opening of the eyes in the morning such a difficulty that they have to be first bathed and softened with water. Objection to light, more particularly artificial light, is felt. The under surfaces of the lids are of a yellowish-red or deep red colour, the pain is pressing and pricking. If the conjunctiva of the eyeball becomes affected, the white of the eye also is red. The treatment is locally an anti-inflammatory one. Six to twelve times daily apply eye baths at a temperature of 68° to 88° F. The water's temperature must be higher in proportion to the severity of the inflammation. In the intervals cover the inflamed eye with a piece of soft linen, about eight-fold, steeped in water at 60° to 68° F.*

Immediately the linen is hot it should be renewed. The matter should be carefully removed by means of a soft, moistened piece of linen or camelhair brush.

The general treatment should be to induce the blood circulation from the part, as must be the treatment in all inflammations of sensory organs. To stimulate the action of the skin and the excretory organs, take on alternate days a whole bed vapour bath, No. 2, followed by complete ablutions at 77° to 83° F.; daily two to three body baths, 83° to 89° F.,

* Father Kneipp recommends instead of the simple compress, herbal applications of fennel, eye-bright, etc. A teaspoonful of fennel-powder is boiled in half-a-pint of water and strained. A piece of soft linen is soaked in the strained liquid and placed on the eye. Decoctions of other herbs are made and applied in the same manner. Aloes and alum are also recommended by Father Kneipp for application to the eyes, the alum in very diluted form. Horsetail water, that is, the strained decoction of shave grass, is an excellent remedy for eye inflammation; the compress should be dipped into it every ten to fifteen minutes. If the inflammation is very stubborn, a head douche may be given once daily.

The venerable priest recommends that affected eyes should be exposed to daylight; in this I agree, and advocate the same thing in "Eye Inflammation." Light has a healing effect on the human body and its constituent parts; the eyes are a part of it, and are in most intimate relationship with the whole organism.

lasting ten to fifteen minutes; at night a stimulant abdominal compress and stimulant leg or calf packs. The discriminate and the careful use of softening enemas, cold foot baths (keeping the feet well in motion in the bath), vapour to the feet, stimulant neck (nape) compresses, throat compresses, massage of throat, chest and back, whole, three-quarter or half-pack, Spanish mantle, hot herbal bandages, etc., are recommended, and must be applied according to individual requirements. Pure, fresh air is of great assistance to the treatment. The eyes should also have the benefit of daylight. If there is any fever, treat as described under "Fever Treatment."

Inflammation of the Eye, Chronic.—Acute inflammation, or catarrh of the eye, frequently develops into a chronic state, through unsuitable treatment, determination of blood to the head, general laxity of the system, chronic abdominal trouble (hemorrhoids, diseases of women, etc.); the matter and tears cease to run, and the pain is absent, yet the inflammation remains, and is recognised by yellowish-red colour of the mucous membrane of the eyelid and white of the eye. The eye constantly feels hot, the edges of the eyelid are thickened and red, the glands and tissues of the lid are more or less affected, the eye susceptible and dull; every irritation increases the malady; the blood-vessels become filled and congested.

The treatment of chronic inflammation of the eye, more particularly if associated with rheumatism or nervous disease, must be directed to removing the cause of the disease. Although cooling applications are required for the eye, yet a local anti-inflammatory treatment is very out of place, as the eyes after such treatment become heated, dry and painful; but mild eye-massage (see this) is very frequently of great service. The eye must be exempted from all exertion and colds. The "General Strengthening Treatment" should be adopted, and at the same time any natural means for hardening the body, accelerating the assimilation, and causing a preparation and distribution of the blood, walking barefoot, walking in water, walking barefoot on wet stones, air, light and sun baths, knee, leg and back affusions, throat (neck), abdominal, and whole (complete) massage.

Movements No. 3 or 4 of the Gymnastic Treatment may be used in individual cases where suitable. The eyes should have both light and air. Diseased eyes cannot be cured in darkness.

Inflammation of the Eye, Egyptian.—The French army which was in Egypt, under Napoleon I., was afflicted with a contagious eye disease. This was later on imported into Europe; we therefore call these epidemics, which break out in barracks, schools, etc., Egyptian ophthalmia.

This disease, which fortunately becomes yearly less epidemic, is, nevertheless, exceedingly catching, and is caused by inflammation of the conjunctiva, sometimes complicated with inflammation of the lids. Round, yellowish-grey, pin-head sized spots, are seen on the inner upper surface on the lid and eyeball, which turn to small red granules, and as the disease progresses, into a grey and yellowish-grey colour. The granules appear either singly on the conjunctiva, or it is so covered by them as to look like fish-roe. If the disease is not held in check at this stage by proper treatment, matter is formed which is very contagious if the least particle should come in contact with a healthy eye.

Uncleanliness, carelessness, damp, over-exertion, bad nutrition, over-crowding (hospitals, barracks, schools, etc.), are all liable to cause this disease. The local treatment of Egyptian ophthalmia is by allaying the inflammation.*

The matter should be removed by means of a soft camel-hair brush. The attendant must be scrupulously careful not to let the disease spread by means of the used bandages or lint, towels, washing-basins, etc. The general treatment is directed towards improving the secretions and directing the blood from the head. A non-stimulant, mild diet, avoiding meat, spiced, savoury, sour or salt dishes, and abstinence from wine, beer, coffee, tea, etc.; massage of the neck for determining the blood to the body, stimulant neck-compress, stimulant chest and shoulder pack in conjunction with leg, calf or foot pack, vapour to the head, whole bed vapour baths No. 2 or 3; whole or three-quarter pack, leg or foot vapour baths, half body or sitz baths, foot baths, enemas, etc., any of these combined with plenty of fresh air, will be found the best means of quickly and surely bringing about a cure. If complicated with fever, apply the treatment recommended in "Fever, Treatment of."

* For all inflammations of the eye it should be a rule never to use a thick bandage; heat and inflammation are increased. The diseased eye requires fresh, pure air, but too bright a light must be guarded against.

Inflammation of the Eye of the Newly-born.—

The eye inflammation of newly-born children is a very dangerous malady, which generally appears three or four days after birth, sometimes even a few hours, but seldom later than two or three weeks. This inflammation is recognised in its early stages by the child continually trying to close the eyes though awake; besides the aversion to light there is a swelling of the upper eyelid and a slight reddening of the eyelid edges. By carefully opening the eye we find the conjunctiva inflamed and red and the eye watery. After a short time there is an accumulation of yellowish purulent mucus in both corners of the eye, which implicates the lashes and lids. It is imperatively necessary in this state to frequently wash out the eye with a soft piece of linen steeped in clean water at about 86° F., to remove the purulent mucus by means of a soft camelhair brush (not too small), and in the application of a four or six-fold soft, moist linen pad (temperature of the water to be 68° to 86° F.), which should be changed every two or three minutes, desisting only during the time the child is asleep; also to apply a stimulating abdominal bandage, which must be renewed immediately it becomes heated. I repeat, if these imperatively necessary measures are not promptly applied, the swelling of the lids and the purulent mucus will increase until the eye is quite closed and clogged. The inner mucous coat of the lids is now quite red, the cornea inflamed, and the swollen lids force themselves into the eye. If this condition continues the iris becomes affected, and this, as well as the cornea, undergo degeneration, which may end in total blindness. The child is feverish, wastes away, and cries a good deal.

In the case of delicate, scrofulous sucklings, the cure of the inflammation is specially difficult. Inflammation of the conjunctiva in this purulent form is generally caused by contagion, through unclean secretions from the mother coming in contact with the child's eye, as in leucorrhœa (whites), or an apparently cured gonorrhœa, etc. Care should, therefore, always be exercised to keep the pieces of linen with which the child's eyes are bathed (in lukewarm water) and the vessel absolutely clean. At birth the eyes of the child must not be bathed with the same piece of linen or in the same water as the body, as it may, during its passage, have retained secretions from the mother on its body which would prove contagious to the eyes.

The treatment of inflamed eyes in newly-born children, especially where there is fever and the inflammation is severe, should, in addition to the means already described, consist of stimulating throat, chest and nape compresses at 77° to 81° F., abdominal compress at 77° F., whole bath at 90° to 95° F., twice or three times daily. The compresses must be changed immediately they become hot. Enemas at 82° to 86° F. should be carefully administered. Again let me repeat "prevention is better than cure," therefore do not allow things to come to such a pass.

Inflammation of the Eye, Scrofulous.—Scrofulous inflammation of the eye is caused by colds, especially in the head, foreign bodies in the eye (dust, sand, etc.), or as the result of eruptive diseases (measles, scarlet fever, etc.), when a chill has been caught during the period of peeling.

Scrofulous inflammation of the eye mostly attacks scrofulous children from one to ten years of age, and affects the glands of the margins of the eyelids, which then present a reddened, swollen, and knotty appearance. In a more severe state of inflammation, the conjunctiva of the eyelid, the cornea, and the hard white membrane become affected. Small abscesses frequently form in the cornea. An extremely characteristic sign of scrofulous inflammation of the eyes, or scrofulous ophthalmia, is a great sensitiveness to light, photophobia, or dread of light, which will sometimes have the result of making children keep their eyes closed for weeks together, and only consent to pass their time in darkness. Meanwhile this salient symptom has no relation whatever to the degree which the disease has attained, although its removal must form the chief aim of the treatment.

Above all things, the little patients should be brought under the influence of fresh air and of light; their sitting in dark and gloomy rooms can only cause their condition to change for the worse. In the more advanced stages of the disease, the eyes of a sick child must be gradually, and very guardedly, accustomed to the light. This may be done either by drawing down the curtains of the room and raising them a little higher each day, or by placing the child in a fully-illuminated room, but with its back to the window, and turning the face day by day slightly more round towards the window. For the rest, the treatment has to be chiefly directed towards the removal of the primary disease. (See

the article "Scrofula," as well as the medical history of a case of this complaint given on p. 361).

Iritis (Inflammation of the Iris) is distinguished by a greater or less immobility of the pupil, which is, at the same time, generally contracted by the discolouration of the inflamed integument and the severe pains in the forehead. Sometimes the first symptom, immobility of the pupil, is absent; while the second, the contraction of the pupil, requires for its establishment a careful diagnosis. The same causes which may produce catarrh of the conjunctiva and inflammation of the cornea of the eye may also produce iritis, but the most common cause of this special form of inflammation is syphilis. If the inflammation be not removed then the iris may easily become adherent to the cornea, or to the lens that lies behind the cornea, and to the capsule of the lens, with the result that partial or entire closure of the pupil may supervene.

The treatment must direct itself to the removal of the primary disease. In general one should apply the treatment described under the heading "Inflammation of the Eyes, Acute," and "Corneitis." In cases where growing together or adherence is taking place, massage of the eye should be applied. (See under this head in Index.)

Lachrymal Canal, Inflammation and Swelling of the, arises from disease of the eye, or from catarrh of the nose, or of the pharyngeal cavity. The flow of the lachrymal fluids toward the nose is thereby hindered, and tears therefore overflow the border (palpebral margin) of the lower eyelid.

The more advanced stages of this malady sometimes produce the so-called catarrh of the lachrymal sac, which is characterised by a small round tumour on the inner side of the lachrymal sac. This excretes, on pressure being applied to it, a small purulent mass, which is discharged through the punctum lachrymalis, or sometimes from the nose.*

Where the malady is of longer duration, the lachrymal canal becomes ever more and more stopped up, and at last

* As I have already explained on p. 1004, at the inner canthus, or angle of the eye, there is a depression for the reception of the lachrymal fluids. This is called the "lacus lachrymalis" (or tear lake). In this place both the "punctæ lachrymales" terminate, and thence they lead, the one to the outer and the other to the lower edge of the eyelid, terminating in the immediate vicinity of the inner canthus.

is entirely closed, so that the lachrymal fluids can only find an exit by means of a fistula, lachrymal sac, or from the furrow between the cheek and the nose.

Inflammation and swelling of the lachrymal canal, catarrh and fistula of the same, require for their cure a local antiphlogistic treatment, as well as a General Curative Treatment, revulsive in character, and calculated to correct the condition of the fluids of the whole system, such, in fact, as is described under the heading "Acute Inflammation of the Eyes." At the same time, other treatment may also be included among the means which may be employed with advantage. For instance, a General Tonic Treatment, accompanied by daily strongly-applied damp friction (see under the heading "Massage, or Damp Friction"), and occasional, but not too frequent application of stimulating compresses to the eye, at a temperature of from 68° to 72° F., also cold head baths. (See under this heading.)

Meibomian Cyst is a tumour on the edge of the eyelid, very similar to sty. It is likewise a kind of boil formation on the so-called Meibomian glands (see p. 1004.) Chalazion sty exhibits a longish, somewhat round and hard swelling, which is found partly on the inner and partly on the outer surfaces of the eyelid. At the same time the outer surface of the eyelid is found to be more or less reddened and swollen; meanwhile, however, the reddened appearance and the swelling soon disappear, and there remains only the hardening.

Sometimes chalazion sty has its place only on the inner surface of the mucous membrane or on the conjunctiva of the lid. It is outwardly shown by a visible and tangible tuberosity, as well as by the accompanying symptoms of itching and burning, by the presence of photophobia (or aversion to light), by the secretion of mucus, etc. On turning up the lid one finds the chalazion sty with a prominent tumour and a yellow head.

For curative treatment the following means are most effective: vapour baths for the head twice or three times daily, and lasting for about a quarter-of-an-hour; antiphlogistic

The punctum lachrymalis absorbs the lachrymal fluid collected in the lacus lachrymalis, and conducts it from the external lachrymal canal to the lachrymal sac. From here the tears pass through the lachrymal canal into the nasal cavity.

cooling compresses on the eye, in alternation with stimulating, antiphlogistic mild eye douches; and in order to draw it away, stimulant fomentations on the nape of the neck, as well as stimulant packs on the trunk and legs; also cold foot baths, combined with strong rubbing of the feet while they are in the foot bath. Foot vapour baths, reclining vapour baths, complete washings and complete and three-quarter packs, and so forth, are now and then of considerable service in the milder forms of this disease, inasmuch as they tend to improvement of the substance of fluids in the body.*

Night-Blindness also called "Night-Fog," or "Night-Shadows," or "Moon-Blindness."—If the disease is congenital or hereditary, it is very seldom curable. If it has been acquired, it must be treated with the General Strengthening Treatment described elsewhere; and the eyes must be very often bathed in water from 77° to 81° F., and in the intervals mild stimulant and cooling compresses in turns should be used. At night the patient should be given thick stimulant packs on the lower parts of the thigh and stimulating fomentations on the belly. One should also aim at keeping the bowels open by using enemata of 77° to 81° F. There should also be two or three cold enemata given daily, a very effective means of drawing the blood from the head.

Short-sightedness: Excess of Sight and Far-sightedness.—Short-sightedness is sometimes hereditary, and sometimes acquired through improper treatment. The cause of short-sightedness is found in the optical apparatus of the eye itself, and not of the nerves, whose purpose it

* For local treatment of sty and of chalazion sty, as well as generally in all inflammatory conditions of the eye, use may also be made of the "Kneipp's Herb Ointment." Kneipp himself writes in his "Testament," p. 130, as follows, on this subject: "Eye-water can also be made from honey. A teaspoonful of honey is cooked, for from four to five minutes, in half-a-pint of water, which produces a very good eye-water. The honey purifies and strengthens. It takes away heat from the eye, while it relieves the pain. I have tried the admixture of herbs with honey, for the most part green herbs; this admixture is called 'eye-salve.' The effect is most striking. In many cases this salve is more effective than any other remedial agent I have ever tried. As a rule, one should put a piece of this salve, about the size of a barleycorn, into the eye every day. This should be placed on the eye itself, or in the corner of the eye, or better still, under the upper eyelid, so that the salve is drawn entirely under the eyelids."

is to convey sensations of sight to the brain. The eyeball has its axis of vision lengthened, and therefore the rays of light that fall upon the lens and are broken by it are cut before they can reach the retina. This is the reason why short-sighted people are very fond of partially closing their eyelids when looking at anything, so as to keep out too great a number of rays of light. A short-sighted person often acquires the very bad habit of reading or writing with only one eye at the time. One consequence of this is that the other eye very often takes to looking in a crooked direction. Short-sightedness is generally acquired through habitual and continuous looking closely at near objects. By this means the power of concentrating the sight on distant objects is gradually extinguished. Learned men, office clerks, watch-makers, engravers and such like, therefore very commonly acquire this disease. For the cure of short-sightedness in cases where it has not lasted too long, the best means is the application of cold water eye douches, massage of the eye, and massage of the throat to draw away from the eye; walking barefoot, walking in water, cold foot baths, and so on.

The short-sighted must avoid reading and writing in twilight, and generally every over-exertion of the eyes. They should also go out a great deal in the fresh air, and when they take such walks they should continually keep their eyes wandering over green meadow-land, lawns or fields. Moderate and sober living, and the avoidance of everything that can cause a determination of blood to the head is necessary. The sufferer who has not yet passed his twentieth year, that is to say, who has been attacked while he is still growing, must never use spectacles when looking at near objects, but only for distant objects, otherwise short-sightedness would only be increased, since a development of the eye in the direction of equalising its powers of sight for near and far objects would be thus hindered. Only after the twentieth year, when one is quite certain that a certain degree of short-sightedness has been permanently reached, is it advisable to wear a pair of spectacles, carefully adjusted to the sight and with concave glasses, that is to say, with glasses that are hollowed out. An eye must be considered short-sighted when it can only clearly distinguish objects at a distance of not more than twenty to twenty-one centimetres.

When an eye is so constructed that the focus of the rays of light that fall behind the retina is wanting, this

produces far-sightedness. This disease must be distinguished from hypermetropia, or over-sightedness, which is not, as in the case of the far-sighted eye, caused by over-exertion, or diseases that have paralysed the muscles used for accommodating the sight, but results from a faulty formation of the eye itself. The far-sighted recognise distant objects clearly and near objects indistinctly. If an object to be clearly perceived has to be over half-a-yard from the eye, this is an indication of the condition of far-sightedness. Far-sightedness which does not always show a morbid condition of the eye can therefore be present in the case of normal eyes, and even in the case of short-sighted people, and may even occasionally be found to exist in persons with excessive power of vision, or what we have called over-sight, or hypermetropia. The reasons of short-sightedness are very many and various in their nature. The space in this book, however, is limited, and I cannot here consider them all. I will not, however, leave the following unmentioned, namely, that far-sight is, in the case of otherwise healthy men, a sign of old age, and, indeed, the first indications of this malady show themselves between the fortieth and forty-fifth year, whence onward its growth is continuous. The far-sighted eye requires concave spectacles, for it is out of the question to think of curing far-sightedness by natural means. One may possibly, however, in order to prevent the increase of the disease, use both cool eye douches and also a lowering regime with advantage.

Squinting.—By squinting is understood the permanent or occasional incapacity of the eyes to bring their axes of vision to an intersecting point in the object looked at. The axis of vision of each eye is therefore directed to a different point. The polar or directing rays of the object therefore do not strike the same point in the retina of the two eyes. The healthy eye presents the object gradually in its "optical apparatus," the squinting, on the other hand, sees the object which is outside its axis of vision. The eyeball in all its movements has a permanent turning point, or point of rotation, this lies equally in eyes that are normal. The external muscles of the eye, which move the eyeball around its point of rotation, must therefore stand in exact antagonism to each other, in order not to bring the eyeball out of its point of rotation, and therefore out of its axis of vision. An external muscle of the eye acting too powerfully upon its antagonist (like muscle in other eye), and

maintaining this ascendancy for any great length of time, must change the normal relative position of the eyeball in regard to its point of rotation. The causes of the abnormality of function of an external muscle of the eye, out of which the abnormality of the organ of vision known as squinting arises, may originate in various ways. There may be a bad habit of vision as a primary cause, or a relaxation, or a disease of the antagonising muscle, or this latter may have become shortened, or a swelling of the orbital cavity may have forced the eyeball out of its axis of vision; a permanently cramped condition of the muscles may exist, etc. In short, there may be a large number of various circumstances which hinder the harmonious activity of the muscles of the eye, and it is not always easy to discover the causes. Squinting takes place either inwards towards the nose, or outwards. It would lead me too far afield if I were here to discuss all the different kinds of squint, both those which are found in connection with one eye and those in which both eyes are affected.

For the treatment of this malady it is best to call in a thoroughly competent oculist, who will then test the power of sight and of accommodation of both eyes. Slighter cases, especially those arising from organic changes in the muscles of the eye, or conditions of relaxation, or paralysis of the muscles of the eye, and many other causes, can, perhaps, be cured by a suitable and careful course of treatment, consisting of massage of the eye and cold eye douches, in conjunction with the General Strengthening Curative Treatment. More severe cases, on the other hand, require for their removal surgical intervention. The tendon of the shortened muscle of the eyeball is divided, great care being taken at the time that the tendon is again joined to exactly the same place at which the muscle must hold, in order that the like muscles of the other eye may come into equal antagonism with those of the eye operated upon. (Eyes, Protrusion of the, see "Basedow's Disease.")

Eye, Foreign Bodies in the. — Foreign bodies which become imbedded in the eye may be of various kinds: sand, rust, coal dust, hot ash or a spark, as is sometimes the case when on the railway; or small metal, wood, or glass-spicules; snuff, ash of tobacco, lime, acid, small insects, etc. These cause pressure, inflammation, redness, burning, pricking, flow of tears, aversion to light. Rubbing or unskilful manipulation

to remove the foreign body only serve to aggravate the above troubles. Small insects, as, for example, gnats or soft substances, are softened by the tears, and they cease to irritate. They are then moved to the inner angle of the eye, when they can easily be removed on the point of a handkerchief corner rolled up. Hard, and more particularly sharp cutting bodies, generally cling more firmly to the eyeball, and cause inflammation more or less, by dint of the force with which they strike the eyeball. They generally rest under the upper eyelid, which, at the moment the eyeball is struck by the foreign body, acts by reflex action and presses down tightly on the eyeball. To remove the foreign body, place the patient on a chair facing the light, stand behind him, and place his head as far back as possible; now let him direct the eye downwards, as if looking at the nose, and take hold of the eyelashes and edge of the upper lid in the middle with the thumb and index finger of the right hand, draw the lid in a semicircular direction downwards and forwards, and press at the same time gently on the upper part of the eyelid (in the rim) under the eyebrows with the middle finger of the left hand, so that the lid becomes, as it were, turned up, showing its mucous lining. In this way, with the assistance of a magnifying glass, we find the foreign body, and extract it with the point of a soft camelhair brush or corner of a linen handkerchief.

Should we be unsuccessful in discovering the foreign body in this way, then all rubbing and pressing must be avoided. Close the eye, and with the ring-finger gently stroke the upper eyelid several times from the outer to the inner angle of the eye, then blow the nose sharply. In this way the foreign body is frequently floated to the inner angle of the eye with the flow of tears, and then easily extracted; or we may proceed as follows: Hold the upper eyelid by the edge, draw it gently away from the eyeball, then draw it over the lower lid, bringing it well down, and suddenly release it. The foreign body may then sometimes be left on the outer surface of the lower lid. This manipulation may be repeated several times if not successful at first. If we suspect the foreign body of being situated on the mucous lining (inner surface) of the under-lid, we should do the reverse of the above, by substituting the lower for the upper eyelid; but this is seldom of service, as the lower lid can be easily turned down. Having extracted the foreign body

and waited awhile, apply cooling bandages 73° to 77° F., to the eye to rectify the inflamed condition of the tissues. Should, however, any corrosive substance have entered the eye, send immediately for a doctor, and in the event of medical assistance not being at once obtainable, and the presence of the substance being evident (as seen by a greyish white spot on the mucous membrane), paint the affected spot with olive oil, oil of almonds, fresh butter, or any neutral fat, by means of a camelhair brush, apply cooling bandages to the eye and protect it from the light. Never wash the eye out (in this state) with cold water, more particularly if unslaked lime or a similar body is evident, as this would only increase its corrosive power; also do not bind too thick a bandage over the inflamed eye, as this produces heat and increases the inflammation.

F.

Face, Erysipelas in the. (See "Erysipelas.")

Face-ache. Fothergill's Face-ache, Tic douloureux.—Face-ache attacks the tri-gemini, or fifth pair of cranial nerves, and then causes, according to the nerve irritated, headache, pain in the sockets of the eyes, in the upper jaw, in the lower jaw.

The causes are direct effects of outward mischief (colds, bruises, wounds, toothache, mercury in stoppings of the teeth), then poisoning contracted through constitutional or infectious illnesses (syphilis, gout, intermittent fever, typhus), or medical poisons (mercury, etc.), inflammatory affusions in the region of these nerves (diseases of the brain mass, tumours on the skull, diseases of the internal ear, the frontal cavity, the cranium, etc.). Diseases of the abdomen, of the bowels, and of women, may indirectly, by means of the nerves, cause irritation of the "triple" nerves, and, consequently, face-ache. Women, as a rule, are more susceptible to this pain than men, as any irregularity of menstruation, the precursors of pregnancy, childbed, and the change of life, as well as general nervous chronic suffering associated with troubles of the abdomen and digestive organs, may arouse and maintain indirectly a temporary or chronic irritation of the "triple" nerves. As I have already said, a distinction arises according to the seat of the pain. (1.) The frontal eye socket pain, in which the first branch, which extends through the eye sockets into the eye and the brain, is affected sympathetically;

(2.) Pain in the upper jaw, by which the second branch, running through the round orifice of the sphenoid, is affected; and (3.) Pain in the lower jaw, which affects the third branch running through the lower jaw, the temples, and the tongue, to the "triple" nerves. The branches are very seldom affected at the same time, and then only where disease of the brain is the prime cause of the faceache. One only is generally affected.

An attack of face-ache comes on without any perceptible cause, or it may arise from either continuous talking, yawning, sneezing, coughing, laughing, use of hot or cold food, bodily or mental exertion, emotion, etc. The pain experienced in an attack is spasmodic, stabbing, boring or cutting, often coming and going with lightning speed. Many sufferers describe the pain as though the nerve were twisting, others as though it were being slowly extracted. Sometimes unconsciousness is occasioned by the violent pain, in others the patient raves, and acts as if he were out of his mind.

But some attacks are comparatively light, and trouble the patient but little. The length and frequency of the attacks are also very fluctuating. The attack itself may last for seconds, even for minutes; its return may be at any hour of the day or night, either for a very short time, or it may last for minutes, hours, days, weeks, yes, months, at intervals.

The treatment should be applied to the cause of the pain. Relieving and soothing treatment, applied locally during an attack, will consist either of continuous application of vapour compresses, may be for seven to ten minutes at a time, changing at least eight to ten times; or in using a head vapour bath (Fig. 131 to 132), or Malten's vapour spray (Fig. 133). After the use of the vapour baths, wash the affected parts carefully in water 82° to 86° F. Further, inhale through the nose water 91° to 95° F., or rinse the mouth with water 68° F.; these will be found very beneficial. Should circumstances permit, the patient should use a full bath, rising from 95° to 106° F., holding the face under water the whole time. Head massage (Fig. 186) and neck massage, and sharp damp friction of the feet, may all be included among good remedies, as well as the application of damp heat.

For general treatment, to guard against a return and to moderate its intensity, the following may be used, with due regard to the individual constitution in deciding on the duration, sequence, and frequency in their use: Sun and air baths,

walking barefoot on ground warmed by the sun, foot vapour baths, alternate hot and cold foot baths (p. 535), bed vapour baths, sponge baths every morning, 77° F., opening enemas, 73° to 77° F., in connection with small cold, 64° to 68° F. Afterwards, dry rubbings of the upper and lower leg; once or twice weekly a bed vapour bath (No. 1 to 3); two or three times a week massage of the body, daily course of motions, No. 3 of the Simple Active Movements of Curative Gymnastics, as well as nightly stimulant bandages, 77° F., to the head and face; 68° to 72° F., neck; 77° to 81° F., body; 68° to 73° F., calves of the leg. The food should be wholesome and plainly cooked, and in general should be mixed (animal and vegetable).

Face, Paralysis of the.—Here again, as in lockjaw, we distinguish between real and spurious, between the masticatory and false. In facial paralysis, when only one side is affected, movements of the jaw are either confined to one side, or should both sides be affected, they are quite suspended. But by far the greater number are pseudo, i.e., paralysis of the facial nerves. The seat of the mischief is generally inflammation of the lower jaw and its glands, of the ear glands and those of the inner ear, diseases of the brain and its membranes, infectious illnesses, typhus, scarlet fever, smallpox and diphtheria. Injuries and bruises on the skull, colds, etc., are often the real causes of pseudo-facial paralysis. As the facial nerves, which I have already described, conduct a number of nerve branches to the facial muscles, a very widespread disease is produced by its paralysis. The trouble appears either suddenly, or its approach is signalled by pains in the head, face and ears, by dizziness and a void feeling in the head, sparkling eyes, blackness under the eyes, etc. The features of the patient are peculiarly distorted. The affected half, which is smooth and unwrinkled, draws obliquely towards the sound half. The forehead is also smooth and unwrinkled, but is quite stiff, and cannot be made to resume its lines. The eyelids resist the effort to shut them, and remain half-closed; the eyebrow on the paralysed side is drawn upward, and frequently a tear is noticed in the one eye. The tip of the nose is turned to the unaffected side, as are the mouth and chin. On the affected side the lips are more or less apart, and the saliva flows out. When the patient speaks, or tries to laugh or whistle, that side remains immobile. Speech and chewing

are, moreover, very difficult. Sometimes paralysis is found of the uvula, and defects in smell, taste and hearing.

The duration of the illness varies; light cases take weeks and months, severe ones, years to get over the attack.

The treatment of both phases must be directed to the dominant cause. Specially in the treatment of the first, recourse must be had to massage twice a day, gentle kneading, pressing, and stroking over the muscles. For the latter, the same two or three times a day, as well as on the neck; for either, every other, or every third day, a bed vapour bath (No. 3), or a chair vapour bath in connection with a half-bath, at 84° to 88° F., or a hip bath, 82° to 86° F., and gentle massage. Foot baths, sun and air baths, contribute to recovery. Once or twice a day Malten's vapour spray may be applied (Fig. 133) to the face, or instead, vapour compresses. A wash in water of 77° F. should follow the vapour compresses.

Falling-out of Hair. (See under "Hair.")

Falling Sickness. (See "Epilepsy.")

Far-Sightedness. (See "Eye, Diseases of the.")

Fat.—Fat consists of carbon, hydrogen and oxygen, and is found in the vegetable kingdom, especially in the seeds of plants, as well as in the animal kingdom, that is to say, in the bodies of all animals and human beings, where it is to be met with in all the tissues and juices. In the human body much fat is contained, partly in the free condition, as, for instance, under the skin, in the cellular tissues of the cavities, in which nerves and blood vessels are embedded in fat, as well as between the muscles. It serves the purpose both of a padding material in order to produce the rounding of the forms, as also for a protective cushion protecting the tissues that are embedded in it against mechanical influences from without (pressure, etc.). Fat is also contained in some secretions, as, for instance, in the form of skin fat (or sebaceous matter of the skin), hair fat and gall. In chemical combination fat is contained in the substance of the hair and in the substance of the brain.

The fat, however, which we consume with our food is not deposited as such in the organism, but is decomposed by the digestive process, so that its acids finally become carbonic acid and water. In the course of this process warmth is generated, which forms the chief constituent of our natural warmth. The human body, however, forms its fat not only from the fat consumed, but also out of all

kinds of food stuffs that possess the same fundamental materials as are contained in fat. Thus, for instance, out of the so-called carbo-hydrates, which are chiefly composed of carbon, hydrogen and oxygen, but which possess no nitrogen, such matters, as sugar, starch, gelatinous substances, gum, etc., and, finally, also alcohol. For the last-named reason beer and spirit drinkers are, as a rule, fat (but not well-nourished), because they introduce into the system more matter than they can use up in the respiratory and digestive processes that aid nutrition. Fat is, when largely accumulated in the body, a bad conductor of heat; it limits loss of the natural warmth of the organism. For this reason people living in cold countries, such as Greenland, etc., instinctively eat a great deal of fat (whale's blubber) in order to supply the body with the material for warmth. Although the foods named above, such as sugar, starch, etc., may contain the material for warmth, and be able to transfer it to the organism, they, nevertheless, cannot be used as a substitute for fat on account of the digestive properties of the latter. Fat has the special task, when it reaches the stomach in a finely-decomposed condition, of helping in the formation of chyme. When, together with the chyme, it reaches the duodenum, it becomes combined here with the albumen of the chyle and the gastric juice into a milky mixture, out of which the nutritive matters can be most readily absorbed into the blood and the lymphatic glands. For this reason we add fat to our foods, and many a kind of nutriment that does not naturally contain a certain quantity of fat would, therefore, without added fat, be very indigestible. We make use of fat, as well of vegetable as of animal fat, in manifold forms. Olives, poppy seeds, rape seed, cocoanut oil, and so forth, represent the vegetable fats; and butter, lard, suet, mutton fat, goose fat, cod liver oil, etc., the fats from the animal kingdom. Just as wholesome as is a moderate addition of fat to our food, and just as much as it is an aid to digestion, so injurious is an excessive consumption of fat, or the eating of rancid fat. With too great an inclination to take fat, which is converted into fatty acids, and then produces a formation of acids in other substances, it excites the formation of gastric acid (pyrosis or heartburn), generally spoils the stomach and weakens the digestion, since it results in an excessive secretion of gall. Further consequences of the immoderate use of fat in food are pains in the stomach, colic, diarrhoea, an overloading of the abdominal veins with

carbonic acid, obstructions, engorgements, and, finally, corpulence.

Something should also be said about the outward application of fat. Fat makes hard skin and hair more pliable; it also destroys parasites that live on the skin, and therefore keeps away many a skin disease. Warmed oil is used as a softening remedy, and one to ease pain, and can therefore be applied in all kinds of painful ulcerations by means of inunction (or rubbing in); or in cases where rubbing would cause pain, one may simply lay on the place a flannel rag dipped in warm oil. Linseed oil mixed with lime water makes a good covering for gangrenous wounds, only the linen rags saturated with this mixture that are laid on gangrenous wounds must not be changed, otherwise the gangrenous vesicles burst, and air has access to the inflamed surfaces of the wound. The linen rags are therefore left on, and are only moistened from time to time with the mixture.

Fatness. (See "Obesity.")

Feet, Cold. — Cold feet prove the existence of defective distributions and obstructions in the circulation of the blood, and constitute a co-symptom in feverish affections and chronic sufferings. Chronically cold hands and feet are a widespread ill among a generation brought up and dwelling within four walls. It is with a view to do away with the cause that any treatment is of any use. Delicate persons may follow the rules of the "General Strengthening Treatment," and take as much exercise as their strength permits in the open air in all weathers, take air and sun baths, and expose the bare feet as much as possible to sun and air, and go about barefoot. A digestible, plain, solid diet, and regular going to stool, are indispensable. Every other evening, at bedtime, take a foot bath, or alternate foot baths (p. 535), or a bed vapour bath No. 4, and then follow by washing in water 63° to 67° F., and brisk friction with the bare hand. It is advisable to practise the movements of Course No. 4 of the "Simple Active Motions in Natural Gymnastics," once daily. Massage, especially by one's own hands, with the help of appliances (Figs. 215, 216, 220, 221) will be of great service. Stronger persons may use Kneipp's knee douche every other day, and walk barefoot as much as possible on wet stones, grass, or newly-fallen snow, etc. Cold foot baths, bathing and standing in water, are beneficial. As in every application of the rules of Natural Hygiene, the motto "Be

moderate" should be respected. Be careful to warm the hands and feet thoroughly after the cold applications. In fever, cold hands and feet should be warmed by a hot water bottle, wrapped in a damp covering.

Feet, Friction of the. (See Index.)

Feet, Open Sores of the.—This is a disagreeable and widespread trouble, especially among women. Its frequent occurrence has prompted Father Kneipp, one of the pioneers in Natural Hygiene, to express his views on the appearance, the existence, and the treatment of this disorder. I append his article, which is very instructive in other respects, for the use and edification of my readers.

"Young people, adults, and the aged, suffer from open sores in the feet. At the beginning, one foot, or both, swell up, sometimes to a great degree. Sometimes the swollen foot is inflamed in one particular spot, which burns and smarts, and the sufferer is apt to scratch it in his sleep. The skin being once broken and the matter very acrid, it is discharged on the surrounding surfaces. The discharge is inflammatory, spreads, and forms a larger opening, which sometimes is as large as the palm of the hand. The sufferer undergoes great pain. The foot needs careful attention, and if not taken in hand at once, the pain increases and the trouble spreads. Doctors cannot cure such feet, as a rule, and if they are healed the patient's life is endangered, and of this there are instances enough.

"A married woman, unusually strong and healthy, has suffered in this way for many years. When the foot had proper nursing and rest she could go about her business all right. She had used a great many medical remedies, ointments and liniments, and swallowed a good many bottles of medicine, all in vain. If the sore healed it broke out afresh, and so it went on. At last a doctor promised he would undertake to heal it if she would keep her bed six weeks, and faithfully carry out his prescriptions. Every day she was subjected to strong purgative remedies. The sore improved day by day, and at last it closed; she felt quite well and strong, and could carry on her business. The foot did not break out again, but the good woman began to suffer pains in the head and chest, and distension of the body. All at once she threw up her occupation, was in bed four days, and had paralysis of the heart.

"It is, to me at least, very incomprehensible why people cannot understand that the cause of sore feet is to be found in a sickly body; so the body must be set right to cure the feet. That is done when the body is relieved of all diseased matter, and the health so strengthened that no more of this matter is formed. This is the only natural cure. Nothing should be done to the feet except keeping them clean. When all diseased matter is expelled from the body, and the wound cleansed from all impurities occasioned by the spread of the discharge, the foot will heal of itself. But nature must be fortified for some time, until at last the entire body is sound.

"Women suffer more frequently from sore feet than men, especially if they are stout. Thin people do not get sore feet, which proves that stout people suffer more from accumulation of blood and humours, and that their spongy nature presents a fertile soil for the growth of every possible diseased matter. Healing is, in my opinion, only possible by water applications, which are able to break up and carry off every disease.

"There does not seem to me any complaint more easily cured than sore feet; but you must adopt the view that the foot itself is perfectly healthy, and that the diseased substances of the body have forced their way through the foot.

"In treatment it is most important to disperse all unhealthy accumulations, to expel them in every direction, and to strengthen the health in such a manner that diseased and destructive matter cannot be set up again. The expulsion of exhausted and decayed substances is provided for by nature, by exhalation, evacuation and perspiration; but if the system is unable to carry out these functions, and is not built up properly to enable it to do so, the healing will not be carried out.

"A few instances will make the matter clear. A woman, aged fifty-two, and rather stout, had open sores on her feet for eight years. She applied ointments and took medicine, visited several health resorts, but nothing cured her feet. Twice the doctor succeeded in healing them up, but in a month they broke out again. I prescribed for her as follows:

"Apply, twice a week, bandages soaked in warm hay flower infusion, reaching from under the arms down to the knee, and wear it for an hour-and-a-half. Take two half-baths a week, two leg affusions, one for the back and one all over.

Twice a day take half-a-cup of tea, made of rosemary, wormwood and elder flowers. The pain in the feet was less on the second day, and on the fourth was pretty well gone. In the fortnight during which she followed my prescriptions she felt remarkably happy; the wounds were smaller, the discharge reduced to about a half. She acquired a healthy appetite, and the cure seemed to be in a fair way.

"She had now to take three half-baths a week, two back affusions, and two for the entire body, and every other day bind a four-fold cloth that had been soaked in vinegar and water round the abdomen. She had also to take every day a cup of tea made of wormwood, shave grass and sage, divided into two or three parts. In another fortnight the feet were half-healed, and much thinner than at first; her health could hardly have been better, and the discharge was very trifling. Then followed my third prescription. 'Every week take three half-baths, two complete affusions, a short wrap and a leg affusion. An infusion of rosemary, sage, and ten or twelve juniper berries, half-a-cupful at a time. Carry out this treatment for three weeks.'

"The result was, both feet healed, the swelling vanished, and the patient had a good appetite and slept well; she thought her strength increased every week. So far she seemed quite cured, but I thought it better to guard against relapse by further precautions.

"She had to take two half-baths one week, in the next three, and put herself into a short wrap at the end of the fortnight. These applications prevented any fresh formations, and strengthened the system, so that it was better able to throw off exhausted matter. She was allowed to eat anything light, nutritious, and wholesome, but had to avoid coffee, wine, and beer. In a year's time the woman came again, and expressed her gratitude, as only those who have suffered much and have been cured can do.

"Would you like to know, dear reader, how the applications acted so successfully on the feet and the body?

"The wrap round the body dissolved and dispersed the humours, and as humours generally collect in the abdominal region, this wrap is the best.

"The half-baths strengthened and stimulated the abdomen and the whole of the lower part of the body, and enabled them to perform their functions; thus these parts were made stronger, and better able to withstand fresh troubles.

"When in spring the cockchafers swarm on the trees, a sensible man goes into his garden, and shakes them off. The affusions act on the same principle, by rousing and electrifying the whole body, and so dissolving many mischievous substances.

"The affusions for the back and thighs act in the same way, but locally instead of generally.

"It should be said this woman lost 36 lbs. in weight, and was thankful to be rid of this burden. The infusions worked internally, dissolving and dispersing, and cleansing the inner condition.

"I must emphasise the fact that a foot in this state must be cured from inside, and that nothing should be applied to the sores that can close them and imprison the discharge. Such treatment appears to me to be much the same as if a farmer were to close all the mouse-holes on his premises, and then suppose they could do no more harm since there were none to be seen.

"A remarkable thing is that persons with sore feet appear to be perfectly well, and look so for some time, especially if well nourished; but when this has gone on for months or years, they collapse entirely, a sign that they are ill, and that their looks were like an apple, that is to all appearance sound but is diseased at the core. A cure as above must, indeed, be rather protracted, for the entire organisation, especially that of the lower parts, has to be built up. This is why short wraps should be applied to the abdomen, to dissolve and draw off, but not less must the body be acted upon, with a view to strengthening it.

"Until the foot is entirely healed, something should always be laid over the sore, to prevent any harm coming to it, and to soak up the discharge still emitted. A very good covering is one dipped in shave grass infusion, and fairly well wrung out; it cleanses, and is healing when the impure substances are removed. Another decoction may be used of worm-wood, which also cleanses and heals; oak-bark tea is very good; rhatany, and similar herbs, will also bring about the same effects.

"But I must condemn all salves, and lotions such as lead water, etc. Such remedies merely form a crust over the wound, and turn back the discharge by closing its exit. I do not call this curing, but making matters worse.

"Very often swollen feet with open sores are bandaged with lint eight or ten yards long, so that they cannot swell

any more. But then the discharge can find no outlet, and not only retires into the foot, but into the body. What the consequences of this must be I leave anyone to guess who is in possession of his thinking powers. How easily may dropsy and kidney diseases be brought on? And diseases of the kidneys and liver work upwards; therefore, no bandages, but outlets are imperative, not only for the good of the feet but of the entire body.

"A woman, tolerably stout, tells me, 'For three years I have had my feet bandaged, for if they are not, they swell and get so heavy I can hardly walk.' The swelling of the feet as soon as the bandages are removed is proof positive that the matter causing the swelling comes from the body, and must be driven out of it, but not through the feet.

"The woman had to abolish the bandages. Every day, for three days, she wore a wrap, extending from the arms, for an hour-and-a-half. It was soaked in hay flower infusion, and laid on hot. It opens the pores, and draws out the foul matter of the body from the arms downwards. Every day she took a cup of tea of elder roots, juniper berries, and angelica roots. This decoction acted as a tonic, and drew off matter.

"The urine was quite thick with foul matter, and in three days the feet began to reduce in size.

"On the first day she had an affusion for the thighs, the next for the back. Further applications were an affusion to the thighs four times a week, for the back twice, and one bath.

"In three weeks' time she had lost weight considerably, ate and slept well, and the feet healed up quickly. It might be supposed she was all right now, and needed no further care. But for some time she took two half-baths a week, until she was strong enough to withstand any fresh mischief.

"The action of these measures is as follows: The wrap from under the arms relieved the whole body, the affusions dissolved, relieved, and strengthened the system.

"Somebody may ask, 'Why not bandage the foot as well as the body?'

"The answer is, had the foot only been bandaged a great deal of matter would have left the body only to remain in the feet, and profuse perspiration would have set up in the body, and foul matter would have been carried away by the urine; so it was quite imperative to act on the body.

“But generally there are a good many foul substances in the feet, and the vessels are often poisoned and worn out, so that these must be discharged, and a healthier condition set up. This is why first every, and then every alternate day, a wrap had to be worn on the leg. When the healing was almost complete every third day was sufficiently frequent; but this could be worn for one hour only, and had to be renewed at the end of an hour. An affusion for the knees should also be applied, so that the sole of the foot does not become tender through the warm wrap, and the discharge is not extended.

“At one time linen bandages were used, but now linen and indiarubber are worn, and this is worse. Even with linen only the discharge is arrested, but with indiarubber it is stopped altogether. But when the sores have been stopped discharging, and a bandage is wrapped round, if only at night, the foot will become a horrid mass, and the healthiest feet would suffer from such bandaging.

“But an elastic stocking is still worse in its effects, for not a drop can the foot discharge. Any thoughtful person can form some idea of the state of things. It is true the last “improvement” has produced a so-called porous india-rubber bandage; but I should decline these as well, for bandaging is injurious in itself, and the skin suffers because all discharge is prevented by the bandaging.

“To cure a sore foot and to keep it healthy, it must be acted upon by fresh air, as I could prove by numerous instances.

“Many methods and measures, have been invented for the purification and healing of these sores; but all efforts must fail as long as the diseased body communicates with the feet, and as long as there is not a way for the separation and expulsion of the diseased matter. If I have already healed and relieved many a sickness, it is just in this respect I have obtained the best results, often in cases where the sufferers had given up all hope of cure and relief.”

Feet, Perspiring.—Many people suffer from excessive perspiration of single parts of the body, more particularly in the armpits, the privates, the hands, feet, etc. This results in a diminished capacity of skin to carry out its functions. Excessive perspiration of the feet is an exceptionally unpleasant indisposition, causing by its moisture soreness between the toes, or wherever there is any friction. The perspiration

from this source has also mostly a very pungent and repugnant odour, which becomes very offensive to those near the sufferer.

That the foot in this case is chosen as a representative organ for discharge of the cause of all the trouble needs no particular proof. The fact proves the justice of Dr. Louis Kühne's doctrine, that the diseased matter, in its wandering through the system, presses principally towards the extremities, to make an outlet for itself there (p. 208). But this by the way. Perspiration of the feet is a trouble that is, to all appearance, local, an increased output from the sweat glands in the skin of the feet, but is in fact only a result of general disorder, and to remove it general treatment is required. Owing to the usual enervation of the feet, a predisposition for the pressure of foreign matter to these extremities is set up, and is the principal cause of the frequency of the disorder, evident to anyone who knows that it never occurs to adults and children who go barefoot, and persons who are hardened in general very seldom suffer from it.

The treatment consists principally in careful attention to the skin. The patient should take a sponge bath, 73° to 77° F., every morning, or a rubbing down, 77° to 81° F. On alternate evenings he should "quicken" his feet before going to bed by a foot vapour bath (Fig. 127), or a leg and foot vapour bath (Fig. 126), and a cooling wash of the vaporised parts in water, 64° to 68° F. Or, instead of the foot vapour bath, he can take an alternating foot bath (p. 535). On the intervening nights he should have a bed vapour bath No. 3, followed by a sponging in water, 73° to 77° F. He should also take two body baths a day, 81° to 85° F., for about a quarter-of-an-hour or less, or a half-bath, 85° to 89° F., for about five or ten minutes. In many cases Kneipp's short packs, and especially the hay flower foot bath and sole bath, are successful.

Adopt a plain, digestible and vegetarian bill of fare, sleep with open windows, take open-air exercise, and provide for regular stool by frequent application of enemas, 77° to 81° F., and small cold ones, 64° to 68° F. The famed scientific cure of perspiring feet by applying salycilic acid many times a day, or of dusting them with a powder composed mainly of salycilic acid and starch, is futile, or rather injurious, for it is only able to repress a symptom at the expense of the collective organs of the body.

Feet, Swollen.—Swollen feet accompany general debility, and disappear on its cure—generally a foot bath, bed vapour bath No. 4, followed by ablution in water 68° to 72° F., and rubbing dry. Massage of the feet and legs—done towards the centre—is effectual in reducing the swelling. Apply at night, irritant foot packs, 63° to 67° F., and packs of the same temperature, to the calves of the legs. In following these instructions, do not neglect to carry out those for General Treatment, to combat the original cause, or to add to the nightly appliances a stimulant bandage on the body and back, and to include an extra stimulant compress for the abdominal regions.

Fermentation.—Decomposition very quickly attacks organic substances, and occurs in various ways. It may be done by the action of a very high temperature (burning), by the effect of non-organic substances (corrosives), or fermentation (putrefaction, corruption, etc.). Fermentation arises through the introduction of microscopic living organisms, and it is still a question among scientific men whether the organisms are there first and cause fermentation, or whether the order is reversed. The micro-organisms consist of one or a very small number of cells. The germs of these cells pervade the atmosphere, and constitute a part of the so-called (sun dust) solar mates. In decomposition produced by fermentation these microscopic particles play an important part, as in the fungi of yeast (mould, etc.), and bacilli, bacteria, etc. They affect the decomposition of the organic matter concerned by the way in which they draw their sustenance from it, thus destroying its combination. Fermentation, as we see, can only arise in organic substances by the introduction of fungous germs, or specially of oxygen, and this fact solves the question as to whether fermentation or its germ exists first, if fermentation and decomposition cannot arise unless air or oxygen be admitted.

Fermentation can be prevented by exposing the organic matter to a higher temperature, which destroys the germs of the lower organisation contained in it, and by preserving it (when purified) in such a way that it does not come into contact with air, or only with such as has also been cleared, either by the effect of increased temperature or in some other way (disinfection). Drying up or congealing organic matter prevents decomposition, though the latter is successful in some compositions only. (See remarks on p. 787.)

There are many kinds of fermentation. Alcoholic fermentation ensues at a temperature of 59° to 68° F., by mingling fungous germs with a fluid containing saccharine matter, which ferments by putting in yeast; the admission of air as an aid to fermentation, is important, for it contains yeast germs as well as other micro-organisms. The juice of fruit ferments without the addition of yeast (spontaneous fermentation), as upon the peel or rind germs of the yeast are deposited in the form of mould. Yeast consists of tiny colourless bubbles or cells, called yeast-germs; these

are ranged in bead-like rows, and increase by sprouting and germinating. There are many kinds of yeast-fungi, beer, wine, alcoholic, etc.; they develop in the saccharine fluids at the expense of the sugar, and increase without end; the sugar is deprived of alcohol and carbonic acid. The fluid is now acted upon by the alcoholic fermentation, and on its surface there are little bubbles, containing carbonic acid, rising to the top; the temperature in the fermenting liquid rises until the process is complete. The liquid has clarified itself, is bright, and more or less trans-

parent; is no longer sweet, but tart, sour, pungent—in a word, alcoholic. During fermentation a large amount of carbonic acid is drawn from the air, and it is dangerous to enter the room in which the process is going on to any great extent. Poisoning, more or less severe, by carbonic acid gas would be the inevitable result (p. 1388). On alcoholic fermentation the composition of all alcoholic beverages is based. Wine is made by the alcoholic fermentation of grapes containing sugar; beer by a fermenting fluid in a state of post-fermentation, made of sprouting grain, or of malt and hops. Brandy, again, is made from corn, turnips, or carrots, whose starch has

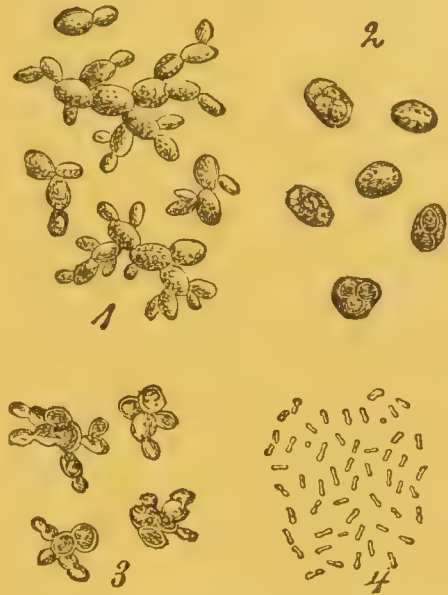


Fig. 371. Decomposing Fungi.

(Greatly enlarged.)

1. Wine yeast sprouting. 2. Wine yeast developed. 3. Wine yeast germinating. 4. Wine yeast bacteria.

been converted into sugar by fermentation, and is now again submitted to alcoholic fermentation.

The mucous fermentation of sugar, milky fermentation, butter (buteric) fermentation, vinegar (acetic) fermentation, are other phases of fermentation. Decomposition and decay are generative processes which nitrogenous organic substances undergo spontaneously, with the development of offensive gases. In decomposition brought about by bacteria, the admission of air to produce fermentation is not essential, it flourishes on the oxygen derived from the bacteria; but if organic matter, capable of putrefaction, be exposed to the air, oxidation is added to decomposition. The important discovery by the far-famed lay doctor, Louis Kuhne, of Leipzig, as to the identity of all diseases, as well as the principle based upon it, that the existence of every disease arises from inflammation of human tissue (especially the albuminous), brought about by the fermentation of foreign matter, has added great practical weight to the theory of fermentation, especially useful in the therapeutics of "Natural Curative Treatment."

Fertilization. (See Index.)

Fever, Conditions that bring on. (See Index.)

Fever Crisis. (See Index.)

Fever, Hectic. (See "Phthisis.")

Fever, Treatment of. (See Index.)

Fever, Wasting. (See "Phthisis.")

Fibrin represents one of the proteid bodies (compare the article on "Albuminates" which are formed in the tissues of animal and human bodies. Fibrin coagulates in a very short time after it has been separated out of the fluids of the body, in which it has been contained in a state of solution and is thereby distinguished from albumen, which only coagulates at the temperature of boiling point.

Fibroid or Fibrinous Tumour is exclusively developed in connective tissues, where it exhibits an enormous increase of their mass. In its consistency it may either be loose and soft or hard and firm. These tumours are sometimes filled with a serous fluid, grow very slowly, and either lie broad, or are pedunculated in the form of so-called polypi on the tissue from which they have been formed. Their size is various. Soft, loose fibroids are generally found close under the skin, where they form the so-called "mother's marks" or "birth-marks," or where they exhibit roundish, swollen, smooth tumours like cutaneous flaps, which are at

the same time found in considerable number. Fibroids are often found in the womb, where, however, they do not always prevent pregnancy, but when it has taken place generally prevent its normal ending, and most frequently bring about a miscarriage. These new growths may exist for years together in the womb without showing their presence by any subjective symptoms worth mentioning. It is only when the fibroids have attained a considerable circumference that hemorrhage takes place. On investigation one then finds that the womb is enlarged and hardened.

Fig, the. — The fig is the fruit of the *ficus carica*. It contains much sugar and mucus, and is therefore very nourishing. The fig is well-known as a mild aperient. It also serves to remove an irritated condition of the mucous membrane of the air passages, and of the digestive and urinary organs. As an outward application or as a local application, the fig is used in the form of a decoction, as a gargle in inflammation and ulceration of the mouth and the pharynx. Boiled in milk it serves to promote the maturing of dental ulcers. In the South of Europe the fig in its fresh condition forms an article of daily food. In Italy figs are often eaten with salt at breakfast. In Turkey figs are prepared as a vegetable. The Smyrna figs, which come on to the market dried and packed in barrels or cases, are the best. The second kind is the "garland fig." A good dried fig must be of a golden yellow colour, and contain carraway sugar. It should taste sweet (not insipid) and easily melt in the mouth, while it should also show an external coating of sugar. If, however the external coating of sugar is already abnormally strong, the fig is nearly decayed.

Fish.—The flesh of fish is watery, and therefore in regard to nourishment is inferior to the flesh of mammals and of birds. One must therefore, as a rule, consume a considerable quantity of fish before feeling a sensation of satisfaction. Fish is poorer in fibrin but richer in albumen and mucus, but always contains more water than the flesh of warm-blooded animals. Fried and smoked fish and salt fish are, as a rule, more difficult to digest than boiled fish. When fish are not too fat they are very easily digested. In point of digestibility the following well-known kinds of fish range as below:

Eel	about 24 $\frac{0}{100}$ fat	Carp	about 1 $\frac{0}{100}$ fat
Herring	" 13 $\frac{0}{100}$ "	Pike	" 0.6 $\frac{0}{100}$ "
Salmon	" 5 $\frac{0}{100}$ "	Cod	" 0.3 $\frac{0}{100}$ "

Fish that live in clear flowing water, free from mud, but with a sandy or stony bed, are distinguished by their pleasant taste and wholesomeness from those that live in stagnant or slowly-flowing streams. The flesh of fish decomposes much more rapidly than the flesh of warm-blooded animals. River fish ought therefore to be offered for sale in the market alive, and sea fish must not have been long out of the water. They must retain their natural colour and must not smell. Fortunately bad fish generally announces itself before its purchase, but not always. It sometimes happens that a gourmand enjoys the enhanced flavour of bad fish, like some people enjoy high game, and spoils his stomach with it. Diseased fish can be recognised, especially by examining the gills. When these do not show a fresh red colour it is a warning signal to the purchaser. Moreover, when the flesh of fish appears very slimy and fatty, one cannot be certain of its healthy condition. A healthy fish must show a whitish stuff between the layers of muscle, somewhat resembling coagulated white of egg or albumen. Tainted fish, or fish that smells a little, is very injurious; it produces inflammation of the stomach. Bad haddock is especially injurious for the digestion. This is, however, easily recognised by its evil smell, by its pale gills and fins, and by its extraordinarily white flesh. Moreover, all bad sea fish generally exhibit more or less these signs of the process of decomposition.

When buying live carp one should take care that its eyes are not sunken in, that it is not pale in colour, or shows dull spotty appearance, and no moss-like growth on its back. Such appearances indicate either a disease, or that it has already survived many a birthday feast. Fish are often afflicted with disease; smallpox flourishes amongst them (vesicles appearing between the scales), and one only wonders that in this our very enlightened age of vaccination and bacteriology, the idea has never struck anyone of introducing vaccination amongst fishes, especially the carp. In view of the attempts at artificial fish culture, it ought certainly to be quite easy to find ways and means for extending to the fishes this most blessed institution.

Fish is peculiarly suitable as an article of diet in those cases where the object is to lower the amount of nutriment taken. It is therefore specially suitable for patients suffering from repletion, from hemorrhoids, or a predisposition to apoplexy, and for those with blueish-red faces.

Fistula, Bowel. (See "Rupture.")

Fistula. — The channel that is formed in consequence of a process of ulceration, and which either commences in a normal cavity of the body and then opens outward, or connects one normal cavity of the body with another, so that an abnormal connection is set up either between internal cavities of the body or between one internal cavity of the body and the outer surface, is called a fistula. By means of a fistula, then, which is, as we know, a morbid and abnormal channel of exit, there takes place a continuous excretion of the pathological products, which are exuded in the cavity of the body in question, by which means cure is made more difficult or entirely abortive. A distinction is made between congenital and acquired fistula. The former kind have their origin in hindrances to the development of the foetus within the womb; the latter have their origin in inflammatory or ulcerative processes, or may be caused by wounds or injuries. Lachrymal fistula, rectal fistula, fæcal fistula, vaginal fistula, biliary fistula, urethral fistula, salivary fistula, are, as a rule, the forms in which fistulas are most observed. The treatment requires, in the first place, as its fundamental basis, the taking into account the primary disease. Locally the treatment should be such as that described under the heading "Abscess," and under the heading "Wounds."

Fistula of the Rectum. (See "Intestinal Catarrh, Acute.")

Flow or Flux. (See "Rheumatism.")

Foot Bandage, Kneipp's. (See Index.)

Foot Bath. (See Index.)

Foot Coverings, Normal. (See Index.)

Foot, Dislocation of. (See "Dislocation.")

Foot, Spraining the. (See "Sprains.")

Foot Vapour Bath. (See Index.)

Fothergill's Pain in the Face. (See "Face-ache.")

Fracture. (See "Bones, Fractured.")

Freckles are small round spots, the size of a pin's head, or even as large as a bean, placed near one another in groups, or merging into one. They do not occasion the slightest unpleasant sensation, but are, nevertheless, not desirable. Seen under a strong magnifying glass they look

like yellow, or bright brown thickly-spread punctures in the epidermis, over which the quite unaffected upper layer of the epidermis is drawn like a transparent cover. These punctures are the orifices of the sweat glands, which are thus impeded in their action. This is why a skin that is liable to freckle does not perspire. The cheeks under the eyes, the nose, the forehead, and the backs of the hands, in fact, all parts that are exposed to the light, are covered with freckles. You will not be wrong in attributing a constitutional reason to the fact that everyone is not troubled with them, and this is demonstrated by fair and red-haired people who have tender white skin. If freckles appear in any great number on a place that is not much exposed to the air, irregularities in the menses, liver, and other parts of the digestive organs, are frequently the cause. In summer the freckles are more apparent, but in winter they often fade and disappear altogether.

No treatment can be applied. To enable the perspiration to flow freely at the affected parts by means of the application of damp heat would do no good, but rather harm, even if the perspiration was still there. So freckles must be taken in the day's work, without grumbling, especially as the health is not affected in the least, even when the freckles are thickest. There are plenty of cosmetics for freckles, but it is better to put up with the annoyance for which they are applied than to use them.

Friction. (See Index.)

Friction, Dry. (See Index.)

Friction Sitz Bath. (See Index.)

Friction of the whole Body. (See Index.)

Friction, Wet. (See Index.)

Frostbites, Chilblains, Inflammation by Cold.—

Parts of the body exposed to great climatic cold are sometimes frozen or bitten by it, and, should they be warmed too suddenly, are subject to inflammation. This arises from paralysis of the walls of the blood vessels, and by the enforced stagnation of the blood in the vessels, and reveals itself by purple or red swellings and blisters. The affected tissue, and that around, is soaked with a serous fluid; festering and mortification are possible results of the inflammation. Chilblains are a red inflammation of the skin which swells, while its tissue is thickened. The inflamed skin is generally

burning hot, and itches terribly. When warmer weather sets in they disappear, and return with the next winter's cold.

Prevention is the great thing in the treatment of injuries by frost and cold. Protect the parts most exposed to winter's cold (hands, feet, and ears) by suitable clothing, woollen gloves, mittens or cuffs, stockings, shoes or boots, flaps for the ears, avoid standing on wet or frozen ground, as well as warming the extremities at the fire, or, as is often done, in hot water. Newly-acquired frostbites or frozen limbs must be gradually thawed, first by rubbing them, in an unwarmed room, with snow or iced water, very carefully, but briskly, then using less cold water for the rubbing, and finally, in a warm room now, laying on stimulant compresses, 59⁰ to 63⁰ F., covered by wool, and renewed when warm.*

Frozen People, Treatment of. — When extreme cold has, for a length of time, been allowed to exercise its influence on the living human organism, or on one of its parts, the contractile properties of the blood vessels become paralysed, the vessels become relaxed and enlarged, and are now swollen out and filled with blood. The skin takes on a blueish-red or blueish appearance. Then there are formed on the skin blisters full of a turbid, bloody, watery fluid. When this stage is reached, a return to the normal condition is as

* Frostbitten ears should only be rubbed with snow or water if the case is mild. Should it be severe, friction must be strictly avoided, for the ear might break off. In severe cases fill bladders with ice or snow, and lay them on the ear (or compresses soaked in ice water may be used) until it is flexible. Then it may be very gently rubbed with snow water. When life has returned, the ear inflames and burns fiercely. Then apply thick partly wrung compresses, 63⁰ to 65⁰ F., to the ear. Do the same to a frostbitten nose. It must be done in a cold, unheated room, until vitality be restored.

If the feet are frostbitten, follow Kneipp's system, walking barefoot in freshly-fallen snow. Further, follow the rules for "Frozen People, Treatment of," p. 1049. Old and chronic frost bites should be thoroughly wetted at night before retiring, then washed in water 68⁰ to 72⁰ F., and, throughout the night, thick stimulating compresses at 63⁰ F. be applied to the affected parts. In the morning, after rising, rub the places with water, 63⁰ to 67⁰ F., and then rub them dry. Repeated rubbing with lemon juice, and fixing a thick slice of lemon on the frostbite, during the night, is very beneficial in some cases. To relieve violent pain, and often unbearable itching, rub in mutton fat, cold cream, cocoa butter, etc. If abscesses and festers have set in, follow the given counter-inflammatory local treatment. The general treatment, which must not be dispensed with in the latter case, is that for "Abscess," p. 747.

a rule no longer possible. The parts of the body attacked have become gangrenous, and are shed or thrown off. When the whole body has for a considerable length of time been subjected to a high degree of cold, the following symptoms set in: Through the stream of blood being driven back to the brain, the heart and the lungs, the organs of sensation are deadened, rigidity and unconsciousness supervene. A feeling of fear, weariness and sleepiness usher in this condition. During the sleep the organic warmth is still further diminished, the circulation of the blood is still further weakened, an almost imperceptible pulse and an almost inaudible heart-beat, and an almost imperceptible breathing, characterise this condition of apparent death, which, unless immediate help appears, easily turns into real death, even if paralysis of the brain has not supervened at an earlier stage. All the fluids of the body are at the same time coagulated and turned into ice, the extremities becoming so stiff and brittle that they easily break off. The condition of rigidity may last for hours, or even for days. So long, however, as there are still any traces of heart-beat, or any traces of warmth under the armpits, or on any part of the body that has been covered with clothes, there is still the possibility of saving the life of the frozen person. Therefore, efforts at reviving such persons must be continued with the utmost patience, until absolutely certain and unmistakeable indications of real death have been observed. The treatment, however, must be undertaken with great care, and in a thoroughly methodical manner—any rapid warming of the body again would only have for its consequence certain death.

The frozen person must be very carefully carried into a cold, that is to say, an unwarmed room, great care being taken that no part of the body, especially the nose, the mouth, the fingers, and the toes, is broken off. It is even better to carry the patient into a cold barn. The clothes must then be cut off with great caution, and the whole body, except of course the mouth and the nose, must be covered with snow. The snow must be pressed rather tightly on to the body of the frozen person. Snow that melts is to be immediately changed for fresh snow. When no snow is to be obtained, the body should be wrapped up in several large sheets which have been dipped in ice-cold water and not wrung out, or the frozen person may be placed in an ice-cold bath (full-length bath), in which case one has to take care that the

mouth and nose remain free. The commencement of the thawing of the frozen person is generally indicated by the formation of a thin crust of ice on his skin. The frozen person is then to be left for a few minutes in this condition, and is to be laid, without drying, on a mattress in the same cold room, great care being taken in moving him, then he is to be carefully rubbed with some water that is slightly less cold. If, during this procedure, it is noticed that the beating of the heart recommences, that a few attempts at breathing show themselves, and that the stiffness of the limbs gives way a little, then the frozen person, after he has been dried, must be laid in a cold bed, and his body must be incessantly rubbed with woollen cloths, or with a flesh brush (or rubbing gloves, etc.). Very particular attention is to be paid to the chest, head and limbs in this rubbing. If regular breathing has not set in, then one should adopt the "artificial breathing" (see "Breathing, Artificial"), or some strong-smelling salts (sal-volatile, etc.) should be held under the nose of the frozen person, his uvula should be tickled with a feather, the head sprinkled with cold water, and he should be given a cold enema, 50° to 54° F. If the pulse and the breathing are again in order, then the room should be gradually warmed, and the friction continued in a milder form, and when all danger is over the patient should be given some elder-flower tea, or other warm drink. Further treatment must be regulated according to the symptoms and the troubles that are left behind. (Further on this subject, see under "Gangrene.")

In order to avoid being frozen in very severe cold in the open air, the following precautionary measures should be observed: When compelled to march or walk in the open air, take particular care to have the feet warmly clad, and not to go too far. Always take something to eat with you. If riding in a carriage, often alight and seek to warm yourself by means of continual trotting movements (see under the heading "Curative Gymnastics"), or by vigorously walking up and down by the side of the carriage. When tired, attempt to reach a sheltering roof, and take care not to rest in the open air. Such a rest is attended with the greatest dangers, since easily, in consequence of the sleepy condition already described, one may easily fall into a sleep which will be the last sleep. After a long walk, or after remaining a long time in the open air, carefully

avoid immediately entering warmed rooms, since inflammation may easily be produced by this means in those parts of the body that have been attacked by the influence of the cold. Therefore rub the nose, the mouth, the ears, and if possible, the feet with snow or ice-cold water, in a cold room or outhouse, and only enter a room with a fire in it after the reddening of the skin on the parts that have been rubbed, the fingers, and the limbs generally, has pretty well disappeared, and when the fingers and the limbs generally have again become mobile, and even then one should be careful not to go too near the fire.

Fruit. (See Index.)

Full Bath. (See Index.)

Full Bath (Kneipp's System). (See Index.)

Fungus Poisoning. (See Poisons.)

G.

Gall Stones.—By this term we understand stones of various shapes, sizes, and chemical composition, which develop in the gall ducts, and find their way later into the intestines. It is not quite clear yet under what conditions they form in the gall bladder, in which certain portions form a nucleus, then implant other elements in layers, so that, finally, solid stony masses are found in the gall bladder. These are called gall stones. Sometimes they are in a crumbling, detached, greenish-brown mass, called gravel, and sometimes perfect stones. The size of these stones varies between that of a grain of corn, a pea, a filbert, and an egg. They are found singly, or in great numbers.* They are round or oval, sometimes angular, which permits their being very closely attached, and are whitish, grey, bright yellow, or else greenish, brownish, brownish-blue, or even black. They are light in weight, and possess various properties; they may be quite hard, or dry and brittle. The pains they occasion are also very varied. In many cases the patient does not experience the least uneasiness which would betray their existence, if he did not notice the presence of stones

* Sometimes there is only one stone, but, again, there may be hundreds, even thousands, as post-mortem examinations frequently show.

in the fæces. In other cases, gall stones, especially angular stones, occasion irritation, even a gathering on the walls of the gall bladder, followed by perforation of the walls, the effusion of bile into the pelvis, and, as a further consequence, inflammation of the peritoneum, which is often fatal. Again, the stones, on reaching the biliary duct, the outlet of the gall bladder, cause an obstruction, and bring about gall stone colic, which will be discussed in the next article. This may also become inflammation of the walls of the gall bladder. But if this only follows a connective growth between the gall bladder and the neighbouring organs, perforation of the peritoneum and effusion of bile into the bowels, or outward, may occur, and this generally has a relatively favourable result.

Gall Stone Colic; Foreign Bodies in the Gall Ducts.—As long as the stones remain in the bladder, they do not often occasion much uneasiness. But when they enter the duct, which they obstruct and adhere to, a disease arises which, from its likeness to colic pains, is called gall stone colic. An attack comes on quite unexpectedly, and suddenly, without any warning, often some hours after a meal, or after physical exertion or shock. The patient has violent piercing pains, which either go on as they began, or begin less sharply, and increase continually. The pains shoot from a certain spot in the right side of the abdomen or loins into the back, shoulders, right arm, groin, kidneys, even into the seat, the sexual parts and the thighs. The patient groans and writhes in his awful pain, throws himself on his bed, and lays his hand on the centre of the pain. His temperature rises to 104° F., and sometimes higher. Shivering alternates with profuse perspiration over the whole body. The face is white, drawn, and painfully distorted; the eyes are dull, and have a feverish look; the pulse is low, weak and irregular, increasing occasionally; the muscles of the lower part of the body are contracted, and the body exceedingly sensitive to touch. Sickness often comes on; first bile, afterwards mucus-like masses. Constipation alternates with diarrhœa; the urine is dark, as a rule. Jaundice seldom appears, and if so, only after some time. Unconsciousness may ensue, as well as cramp, shuddering, and delirium. An attack lasts from three-and-a-half to five hours. It recurs during the following days, and the second attack may be even more severe than the first, but later ones will be less so.

The intermittent and remittent character of these fearful paroxysms is connected with the following conditions: As long as the stone is in the ductus cysticus the pain is at its height; the larger and more angular the stone the greater the pain. But when it reaches the broad general ductus choledocus, they lessen only to increase to agony point, if the stone passes through the narrow exit of the biliary duct which leads into the duodenum (intestine). When once it gets there the trouble and dreadful pain will stop, for this bowel, like a broad path, presents no obstacle to the stone's passing on. But so favourable a result is not always attained. Sometimes the stone goes back into the gall bladder. It is true the pain in this case ceases, but it opens a prospect of future colic. If it has gone through the bowels it will be evacuated with the fæces, which should be examined for a whole week to find stones. The fæces should be dissolved in hot water and then strained. If there are no stones, they have gone back into the bladder, or the following is possible: Violent retching and vomiting may have taken them into the stomach, whence they are brought up. But the stone may also have imbedded itself in the biliary duct, so that it cannot move either backward or forward, and if the clearing of the passage is obstructed by the stone, the paroxysms will cease, leaving a dull pain behind, that now and then increases. The inevitable consequences are general upset of the system, by jaundice, liver complaints, etc. Other disorders arising from the impediment in the ducts are treated under the article "Gall Stones."

The cause of gall stones may generally be traced to enervation of the gall bladder muscles, causing accumulation of gall in the gall bladder. The complaint is generally found in persons between the ages of forty to sixty, and principally in women. The reason of this fact lies in wearing a corset, as lacing-in prevents the flow of the bile. Other causes are sedentary habits, habitual constipation, pregnancy, etc. Also luxurious living, taking rich food and alcoholic liquors, which, in advanced life, cause gouty troubles. Chalk in the veins, corpulence, and other disorders of the nourishing processes, are often complications of this disease.

The treatment of gall stone colic must have three points in view: 1. Relief of the pain during an attack; 2. The expulsion of the stone; and 3. Precautions against further attacks.

To alleviate the paroxysms, apply vapour compresses in the region of the liver, eight or ten in succession, for five to seven minutes each, or a warm sitz bath, the temperature to be increased from 95° to 106° F., for a half or three-quarters of an hour, or a half-bath of the same temperature and duration. Use enemas frequently (91° to 95° F.). If unconsciousness sets in, rub the whole body with cloths wetted in water, 82° to 86° F. Massage of the region round the liver should follow the bath and the compresses. It is effectual in pushing the stone towards the bowels, but it must be done by an expert. Rub, stroke, press and knead the region of the liver with one hand, and lay the other under the right ribs, and give kneading pressure to the under part of the liver and the gall bladder, combining pressure and counter-pressure.

But massage must only be used when the parts can bear pressure, as is generally the case. To prevent fresh formations, the patient should follow the "General Strengthening Treatment," and remember that digestible vegetarian food, with plenty of young succulent vegetables and fruit, is most important. The liberal use of salads, mixed with lemon juice and olive oil, is highly recommended.

Gall Bladder. (See "Digestion, Organs of.")

Gall Duct. (See "Digestion, Organs of.")

Ganglion.—A ganglion is a round, slowly-developing tumour formed near the joints, and on the tendinous and nervous parts, which contains a fluid similar to the mucus contained by the joints. In the beginning of its existence it is soft and elastic to the touch, afterwards it gradually hardens, but it always remains more or less moveable, and is, as a rule, quite insensitive. This formation is found mostly on the back of the hand, rather near the joints.

A ganglion generally results from a faulty mixture of the humours, and is in many cases the spot where pathological products settle; although it also may be said, that its existence is often caused by other means, such as a blow, squeeze, or pressure. The treatment should therefore be directed to rectifying the faulty mixture of the humours by adopting the "General Strengthening Treatment." Massage, in the shape of stroking, rubbing, kneading, and so on, should be applied to the affected spot. It will also be efficacious to bathe the spot by vapour, and to use wet hot compresses and hot wrappers of 68° to 72° F. In many cases a local application of the

Kneipp system of lightning affusion, or of the spray douche, will be very efficacious.

Gangrene is the name given to a partial dying off of individual parts of the body, the complete or partial extinction of their vital functions. One speaks of hot gangrene, which is also known in England as moist; of acute, when the vital activity is not yet extinguished, and when the conversion of the attacked portions of the body to a normal condition is still possible; and one speaks of cold or chronic gangrene, when the power of life is entirely extinguished, and the part of the body referred to is thus actually dead.

Cold gangrene is also subdivided into dry gangrene, when the gangrenous portion shrivels up and dries like a mummy; and to moist gangrene, when the attacked portion undergoes a fluid and putrified decomposition. One also speaks of senile gangrene (that is to say, the gangrene of old age), which, in fact, exhibits all the phenomena of dry gangrene; and also of toe gangrene, which is also characterised by the symptoms belonging to the dry variety, and which especially attacks elderly and gouty persons. Finally there is hospital gangrene, which may arise either independently, or as a consequence of infection, in badly ventilated and over-filled hospital wards.

Gangrene is usually the pernicious or malignant termination of inflammatory conditions. The following characteristic symptoms are generally present: Pain and reddening, either diminishing or vanishing altogether (the reddening becomes dark, and eventually blackish); swellings that are present become pasty, the tension becomes less, the epidermis exhibits pustules, the pulse becomes rapid and small, the limbs become cold, cold sweats set in, and a great depression of spirits, which may sometimes give place to delirium. The indirect causes of gangrene are wounds, tears, bruises, corrosions, freezing, etc., of large portions of tissue; faulty bandaging (Pressure, Bandaging, see p. 824); lying on one part of body till bed-sores are formed, etc. Bad composition of the fluids of the body is a predisposing cause to the pernicious termination of the inflammation, that is to say, to the setting up of gangrene.

Senile gangrene, or the form of gangrene that affects aged people, attacks those people whose vital force has sunk very low indeed. As a rule, gangrene sets in with these persons without any inflammatory troubles or pains whatever, and develops itself most frequently in the toes, since those

members, being at a greater distance than other parts of the body from the heart, are most liable to suffer from stagnation of the circulation of the blood, and of the processes of conversion. Cold feet, lack of bodily movement, long-continued paralysis of the lower extremities, etc., favour the outbreak of gangrene. In addition to these mediate causes, we have direct and immediately provoking factors from even some quite small injuries, as, for instance, on the occasion of cutting out a corn, or in consequence of the pressure of tight boots, etc.

Premonitory symptoms are, usually, access of general infirmity, loss of appetite, constipation of the bowels, morbid sleepiness, dulness, heaviness in the feet, cold and pricking in the toes, especially in the great toe. The beginning of gangrene is shown by a red spot, which gradually becomes grey, then of a blue, and finally a blackish tint. Then further spots appear, which go through the same process of change. These increase in size, and finally unite to form one large spot. All this goes on without pain. The skin then shrivels up and turns to parchment, like the covering of a mummy. The gangrene spreads continuously over a larger and larger surface; it is very seldom circumscribed. In many cases, however, gangrene of the toes is preceded by burning pains, which are increased during the night by the warmth of the bed, and which are concentrated now in one and now in several toes, and which are often combined with sensations of cold and of the whole foot being "asleep." Blue-black spots are then formed on a reddened portion of the skin, from which the epidermis gradually peels off, so that the foot then either swells and dries up, or it remains pasty, discoloured, and evil-smelling.

Hospital gangrene, which attacks parts of the body on which there are wounds or ulcers, is shown in the following manner: The surface of the wound, or the ulcerated surface, becomes covered — accompanied by burning pains — with an ashen-coloured mucus; on the discoloured surface of the wound single dirty-white spots generally appear. The edges of the wound swell, exhibit a torn appearance, and an inflammatory red; the secretion of pus becomes bloody and ichorous, and the destruction of tissue becomes greater in extent as well as in depth.

The treatment of different kinds of gangrene must, apart from local antiphlogistic treatment (calculated to counteract

inflammation), before all things aim at the regeneration or reformation of the fluid contents of the body. Occasionally nature lends her aid by setting up a non-malignant inflammatory process, combined with suppuration on the edges of the gangrenous inflammation. In order to assist the natural healing process, we should follow the rules of the "General Strengthening," or "Tonic" Treatment, in which the diet is purely vegetarian. Fresh air in the sick room is imperative. The wounds must be kept thoroughly clean by a diligent washing and bathing with water that has been previously boiled, used at a temperature of 68° to 72° F. (For further particulars, see under the headings "Inflammation" and "Wounds.") One must never omit, to secure a perfectly suitable treatment for each individual case of gangrene, to call in the assistance of an experienced "Natural Treatment Physician," that is to say, a physician who treats disease dietetically and by water applications.

Gangrenous Sore Throat. (See "Diphtheria.")

Gaping, or Yawning, according to current notions in so-called "good circles," is regarded as a sign of fatigue or weariness. According to physiologists, it is a long-drawn breath followed by a short one. Not only are the muscles of the lower jaw set in motion, but the respiratory ones, and the man who has a really good yawn stretches out his arms as well. Thus a good many muscles are put in motion. But a yawning person does not present a pleasing picture, but when alone it is beneficial, for the muscular movement affords a pleasant sensation. It works similarly to massage, and more closely resembles natural pulmonary gymnastics than anything else. Therefore everyone, in spite of looks, should air his lungs and strengthen his respiratory muscles every morning and every night, as frequently as possible, by yawning, many a chronic pulmonary disorder is prevented by it.

After a deep breath the chest remains motionless for a moment in its extended position. The eyes during this interval are either half-closed or entirely, the muscles of the ears are raised, the nostrils inflated. In the mouth the tongue rolls up and quivers, the jaws stiffen, and the uvula rises and entirely shuts off the nasal cavity. At the beginning of the inhalation a rushing sound is heard in the ears, a sign that the aural passages take part in the yawn. Gaping sets muscles in motion that are not subject to the will.

Supported by the fact that, owing to the motion of some of the throat muscles occasioned by yawning, the aural passages are cleared, yawning acts as a remedy in catarrh of the throat, inflammation of the gums, sore throat and earache, etc. Everyone should yawn for the good of his health, as many as eight or ten times successively, i.e., swallow in a particular way. Yawning acts as natural massage in the parts enumerated which may be affected; the means are always at hand, and whoever makes up his mind to yawn can yawn. Children can be yawned at—suggesting yawning, for everyone knows it is catching.

Gases, Noxious. (See Index.)

Gastric Fever. (See "Stomach, Disordered.")

General Strengthening Treatment. (See Index.)

Glanders.—Although it is not of very frequent occurrence that man is infected by glanders, yet the fact that contagion is conveyed is certain. It is beyond my scope to comment on the germ, as to whether it is contagious or miasmatic, since the faculty is not agreed on the point. I will only say it may be taken through a broken skin, or by inhalation, therefore great care must be taken by those near glanderous horses. In cases where the disease is taken through the skin, the symptoms are inflamed red swelling of the infected part, with great pain, extending from the puncture, scratch, or wound to the adjacent lymph vessels; red stripes and knotty lumps; then, gradually, an œdematous swelling of the part of the body affected, festers and blisters on the skin, fever and its varied accompaniments. But if the infection has been inhaled, the local symptoms are absent, and the complications are shivering, restlessness, general lassitude, dry skin, hurried strong pulse, thirst, rheumatic pains in the limbs and muscles (lumps in the latter); and further, according to the organs around, especially on the membranes of the nose and throat, the lungs and cuticle. They are accompanied by fever of a pyæmic character.

For treatment, see "Fevers," in Section VI. For local treatment of the swellings, see "Mortification," "Blood Poisoning," "Abscesses," and "Wounds." When nose and throat are affected, take throat and nasal baths (p. 570). Diet must be plain, non-stimulating and vegetarian. Do not omit to consult a "Natural Treatment" authority.

Glands. Glands are those organs which serve the purpose of drawing substances, or secreted substances, from the

blood fluid. The matters secreted are then emptied out, either by the external skin-covered surface of the body, or by the internal parts of the body that are covered with mucous membrane. The secretions of the glands are fluid, and consist either of substances which serve for the nourishment and sustenance of the organism, or they are excretions which are no longer of any use for the nourishment of the body.

Every gland is composed of a multitude of small glands, which then give the gland the appearance of either a tube (Fig. 8) or of a bunch of grapes (Fig. 372). Among the tubular glands are numbered the glands of the organ of smell, as well as the glands of the womb, the gastric glands (Fig. 7 b, and Fig. 9 [1, 2]), and the glands of the mucous membrane of the stomach (Fig. 8), the glands of the colon

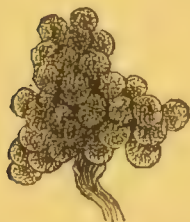


Fig. 372. A gland (in the shape of a bunch of grapes) of the duodenum.

("Brunner's Gland.")

and of the small intestine. Among the grape-shaped glands are to be numbered the sebaceous glands (or the glands of the skin that secrete the sebaceous or tallowy matter, Fig. 16 p); the Meibomian glands, or the so-called Brunner's glands (p. 1004), which are only found in the duodenum; the milk glands (of the breasts); the prostate glands; the so-called Cowper's glands, which are of the size of peas (found in front of the prostate glands underneath the urethra), which supply mucus to the urethra; the so-called Bartholini's glands, found at the entrance of the female vagina, which secrete a tough mucus; finally the salivary glands (glands that secrete spittle), and the pancreatic gland or pancreas. Then there are the coil-shaped (convoluted) glands, that is to say, the tubular glands that are wound round together. These are the sweat glands (Fig. 16 g), the glands that carry off the urine from the kidneys, as well as the seminal canals in the testicles. All the glands mentioned are covered with an extremely fine-woven network of blood vessels and nerves. On account of the large number of vessels these possess, they very easily fall victims to disease.

Glans Penis, Gonorrhœa of. (See "Gonorrhœa.")

Glünicke's Curative System.—A curative system that has been much discussed, owing to the great number that have adopted it, is Glünicke's. The originator of this course is D. Martin Glünicke, private tutor of medicine,

Plate XV.

Curative Plants.*

Fig. 1. Mountain arnica. (*Arnica montana*.)

Infusion of the herb or root, also the liquid extract, given internally for weak digestion, cramp, epilepsy, brain disturbance, apoplexy, serous effusion, bronchitis, and thickening of the windpipe. Externally applied as an infusion or liquid extract for bruises, slight wounds, sprains, and neuralgia. Physiological effect: Promotes perspiration and the secretion of urine, nerve stimulant, expectorant, absorbent in effusion, stimulant to the circulation and respiration. Chemical constituents: Bitter extract, yellowish-green resin, albumen, vegetable mucus, gum, tannic acid, camphor, silicic acid, potash and lime salts, and a bluish etheric oil. Taste is acrid, smell spicy.

Fig. 2. Wormwood. (*Artemisia absinthium*.)

Infusion of the herb and leaves is given internally for acidity (heartburn), weakness of the stomach, chronic diarrhœa, jaundice, the cramp of colic and intermittent fever; externally applied for sprains and contusions. Physiological effect: Blood cleansing, and strengthening to the stomach. Chemical constituents: A bitter resin, bitter alkaloid (absynthein), albumen, salts, greenish-yellow etheric oil. Taste bitter, smell spicy.

Fig. 3. Common hedgewort. (*Cichorium intybus*.)

Liquid extract of the root is used inwardly for catarrh of the stomach, liver, pancreatic and kidney complaints, hypochondriasis and hysteria. Physiological effect is solvent, acid-removing (alkaline) and blood cleansing. Chemical constituents: Bitter extract, resin, sugar, alkaline salts, potash, silicic acid. Taste, very bitter.

Fig. 4. Dandelion. (*Taraxacum leontodon*.)

The infusion or liquid extract of the root or leaves is given internally for bowel complaints, more particularly constipation, liver ailments, diseases of the skin, etc. Externally used as an eye lotion. Physiological effect: Solvent and tonic to all mucous membranes, mildly purgative, blood cleansing. Chemical constituents: Soapy-bitter extract, starch, mucus, large quantity of salts potash, calcium, manganese, silicic acid and resin.

Fig. 5. Wild rosemary. (*Ledum palustre*.)

Infusion of the herb is used only in conjunction with other herbs, as an injection for the bowels.

* See articles on "Boiling Down (liquid extract)", "Herbs, Curative" and "Glünicke's Curative System".

Fig. 6. Camomile. (*Matricaria chamomilla*.)

Infusion of the herb and flower heads is given internally for cramp of the stomach, colic, diarrhoea, stoppage of menstruation, and tendency to cramp of the female organs; externally the infusion is used for washes, lotions, injections, gargle and eye lotion. Physiological effect: Soothing for the cramp, anti-spasmodic (to allay wind), nerve sedative, and to promote perspiration. Chemical constituents: Bitter extract, resin, gum, potash and calcium salts, some sulphur, and a bluish etheric oil. Taste is bitter and spicy; smell aromatic.

Fig. 7. Bilberry. (*Vaccinium myrtillus*.)

Infusion of the leaves is given internally for dropsy and pleuritic effusions, catarrh, cough, and weakness of the bladder. Physiological effect: Slightly astringent. Chemical constituent: Tannic acid, quinic acid and gum. Taste herbaceous.

Fig. 8. Shavegrass. (*Equisetum arvense*.)

The infusion of the herb is given internally for dropsy, pleuritic effusions, blood spitting, difficulty in passing water, and stone in the kidney; externally it is used for indolent sores or wounds, and inflamed swellings. Physiological effect is pain allaying, to promote the secretion of urine, to cleanse the stomach, and slightly astringent. Chemical constituents: Bitter extract, sulphurous and fatty acid salts, silicic acid. Taste, salty and astringent.

Fig. 9. Iceland moss. (*Cetraria islandica*.)

Infusion of the herb is given internally for chest ailments, consumption and debility. Physiological effect: Promoting digestion, and nourishing. Chemical constituents: A bitter substance (cetrarin), lichen starch, mucus, and gelatinous matter (lichenin). Taste bitter-sweet.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

whose own severe bodily sufferings, which had obstinately defied every scientific medical treatment, were his guides on the road to self-cure. The result, which he attained by his own experience during his sufferings, prompted him to turn to the great public, the mighty crowd of sufferers of all kinds. They should, like himself, share in the most precious possession on earth, their health, the restoration of which allopathy had proved itself unable to bring about. Perfectly alive to the fact that innate prejudice on the part of the public against the discoveries of an unlearned person (as far as medical science was concerned) would present an obstacle, and that the development and propagation of a new curative system would be hindered, Glünicke, before making his discoveries public, and after a long course of private study, underwent a lengthened three-year course of study in medicine at Berlin, to be able to establish his facts on scientific grounds, and to remove every possible delusion on the part of the public. The judgment of the medical man had not misled him. The private consultations and the lectures he gave on his system in Berlin were attended by a great crowd of sick people; even the most influential papers spoke most highly of his system; the number of cured increased daily, and medical scientists, roused by the cures obtained, began to present an energetic opposition to the New Curative System, truly the best acknowledgment of its worth, but at the same time a sad confession on the part of scientists as to their own weakness, powerlessness, and inability in curative matters.

Now, let us consider the nature of Glünicke's system. It is based firmly and exclusively on natural measures. As in nature, so in Glünicke's system, the curative factors are air, light, water, motion and rest, diet, etc., and these are held in just estimation. The difference between the principles of the Natural Curative Treatment and Glünicke's consists only in this—that the latter ranks harmless vegetable juices first among curative agents, while the former either ignores vegetable saps altogether, or else places them very low in the ranks of natural remedies. The leading features of Glünicke's doctrine are as follows: The human organisation consists of millions of little cells, which unitedly form tissues and organs.

Glünicke maintains that all illness is caused by overcharging these cells with foreign matter, which either hinders the functions of these cells temporarily only, causing either

severe illness or passing indisposition, or which materially changes the cells, and results in chronic or organic disorders; or, finally, revolutionises the cells, setting up diseased formations, destruction of tissue, etc. The cell thus affected soon reveals the struggle to evict the foreign matter by the innate health germ, or by lodging it in some other part of the body by increasing the strength of the organisation, and so render the foreign matter harmless. But this can only succeed in the case of a limited quantity being introduced. But if it gains ground, the cell is no longer able of itself to undertake the driving out of the foreign matter, or even to localise it and render it innoxious. The expelling power of the organism is exhausted, and requires scientific building up. This Glünicke does by the internal use of some of his vegetable juices, which are absorbed by the blood, and, through its circulation, are carried to every part of the body, and exert an equal and lasting influence on the entire system — on the outlying as well as central cells. By the action of herbal juices, the cells (partly by the removal of the noxious deposits, partly by the purifying of the blood and the humours of the tissues) are affected, or greatly changed cells are substituted. By the use of these healing herbs old deposits are uprooted, loosened, set free, prepared for elimination, and then driven out of the system. For, as Glünicke shows, hydropathy (and specially the vapour bath) acts only upon single parts of the cellular system of the body, and then the surrounding ones; on the other hand, it injures the sickly constitution by abstracting from it healthy, unused, and valuable substances. The artificial inducement of perspiration by the vapour bath may unfavourably affect the already weakened powers of the sick human frame, by carrying away a certain amount of still useful fluid.* Hidden and central

* It would not be within the scope or the limits of this short description of Glünicke's system, to enter upon any discussion or oppose his views as to the physical action of water and vapour. But, although I have fully expressed my own views in this work, I cannot omit here to add, for the benefit of those of my readers who, in adhering to Glünicke's opinion that water and vapour (which are in every case good and useful to man in building up and maintaining his health) "may draw away serviceable and healthy substances from the body," might possibly deprive themselves of the actual benefit, and even, "taking the good with the bad," henceforth leave water and vapour severely alone. If water be used of too low a temperature, or improperly, and vapour be

congestions of long standing, according to Glünicke, are touched with difficulty, or else not at all, by the outward use of water, nor are they dispersed and driven out of the cells. The internal use of herbal saps is not limited to swallowing, but Glünicke prescribes tepid injections (for the bowels) three or four times a week, which are also herbal mixtures. He says himself: "Without these injections, I declare I am unable to cure a single chronic disorder." When necessary, tepid and safe preparations are used as lotions, and injections in the lower part of the body, to act upon certain organs. The herbal juices contain, besides water, various acids, oil, and other vegetable productions. They are extracted by boiling the plants or parts of them in water. They present no mystery, although their class and their efficacious combination is the discoverer's secret.

These are, in short, the principles of Glünicke's system. By its thousands of cures it has won for itself an honourable place in the list of the various rival Natural Treatments, and will doubtless maintain it against those of Priessnitz, Schroth, Kneipp, Kuhne, and Rikli.

Gonorrhœa, Catarrh of the Urethra.—Gonorrhœa is an inflammation of the mucous membrane of the urethra, caused by infection or contact with a poison called "gonorrhœal virus." It is not a disease acquired by outward influences (an argument quoted in favour of the person attacked), but arises from the inception of pus during sexual

applied too often and for too long at a time, they cannot fail to act prejudicially rather than otherwise, for they do then waste vital power and draw away useful substance. When deeply-seated affections are in question, the use of these two agents may not have any direct effect on the old deposits, but by following up their use by stimulating treatment, by the outward application of water as well as vapour, to quicken by gentle measures nature's own restorative or vital-power, circulated by the nerves, we succeed, totally apart from the fact that meanwhile other beneficial effects are felt. By working on the nervous system (the carrier of all sensation) we succeed in breaking up, dispersing, and finally driving out the foreign deposits. It is beyond any doubt that a water cure may be very much assisted by taking suitable, well-tried, healing, and effective vegetable juices, and the arriving at a compromise between Glünicke and the hydropathists would be an immense benefit to the effective treatment of certain forms of disease. As for myself I seldom can sympathise so thoroughly with any system as with Glünicke's, and I again and again implore the adherents of hydropathy not to swear by water alone, but to accept the good part of a treatment from whatever source.

intercourse with a person suffering from the disease. The pus differs from all others in containing one certain class of bacteria, and that one a microbe called "gonorrhœal cocci." It possesses a great power of infecting any membrane of the body similar to the urethral membrane, especially that of the eyes, should it be carelessly exposed to the infection. Parts near the urethra may also be affected, as the prostatic glands (the so-called Cowper's glands), the testicles, spermatic vessels, the bladder, the urinary duct, the bowels, and the vagina. To acquire gonorrhœa, there must undoubtedly be a tendency, based on various individual and otherwise accidental circumstances, but it is generally caused by charging the constitution with an accumulation of foreign or constitutional poison. One attack increases the tendency and the liability to infection. It is always considered a very serious disease, owing to the great probability of its becoming chronic, as well as to its many dangerous complications, and yet there is no illness so lightly regarded by thoughtless youths as catarrh of the urethra. By them it is even considered as a sign of life experience, even of manliness, to have had it. It is true it is purely local at first, and the sword of Damocles does not hang over the head of the sufferer as in syphilis, of the fear of his entire body being affected, but, as we shall see later on, the many physical disorders and complications it brings about are by no means trifling.

The clinical picture of gonorrhœa is represented by an incubation stage lasting two to five days: we seldom find a lesser interval between the infection and the outbreak of the disease.

It commences as a slight prickling pain-tickling accompanied by a transparent, light discharge from the urinary passage. The titillation is soon changed into a burning pain, which increases at the time of making water. The extremity of the urinary passage is somewhat reddish, and is occasionally blocked up by the hardened mucus. The flow of the matter now gradually increases; it also thickens, resembling pus, and becomes of a greenish-yellow colour, leaving stiff stains on the body linen and bed linen. The extremity of the urinary passage becomes swollen and inflamed. Sometimes the whole part at the extremity of the urethra is swollen and most sensitive; the pain, which gradually increases, concentrates chiefly around the foremost part of the urethra in the region of the small hollow (fossa navicularis) under the scrotum.

The sharp, mucilaginous discharge assumes a reddish colour in cases where small veins have burst in the urinary passage, but this does not imply that the case is more dangerous. The foreskin becomes inflamed through the sharp and plentiful secretion; it then swells, and secretes also an acrid mucus. The pain and inflammation, which are now at their height, are most intense, and when the urine enters the urethra, become almost unbearable. Only when the patient has finished making water does the pain gradually lessen. Involuntary erections of the limb take place, generally during the night, which are very troublesome and painful, preventing sleep. Matter exudes by day as well as by night, and continual retention of urine also generally occurs in this disorder (gonorrhœa). Several complications may appear, as shrinking of the prepuce and tightness of the member. Sometimes, but seldom, the disorder is accompanied by numbness of the member. In this case the posterior part of the member is stiff, whilst the foremost part hangs down in a relaxed manner from the stiff part. Should the disorder last long, the following parts may become inflamed. The glands of the limb and of the urinary passage, the mucous membrane of the urethra, the lymphatic vessels on the back of the limb, the prostate, the glands in the genitals, and the Cowper glands, etc. Here a great many clinical observations could be made, but owing to want of space they cannot be put down. It very often happens, while gonorrhœa runs its course, that a catarrh of the bladder sets in, and an inflammation of the kidneys may also set in. (Compare the two articles.) A very important, and, at the same time, very frequent accompaniment of gonorrhœa, is an inflammation of the spermatic vessels and testicles. The inflammation in this case generally keeps on the same spot, but occasionally (mostly in the third week of the illness) it spreads to an adjoining spermatic vessel, and affects the skin of that vessel. Bodily exertion, mechanical pressure, and irritation of the spermatic vessels, the injection of acrid chemicals — so-called remedies for gonorrhœa — generally favour the inflammation of the spermatic vessels. The forerunners (in this case) of the inflammation are shivering, great exhaustion and headache, after which a fever of various degrees (up to 106° F.), and acute pains in the affected spermatic vessels, set in. Upon this a swelling of an adjoining spermatic vessel takes place, which often measures three or four times its usual size in circumference.

When the skin of the testicle is covered by a greater or lesser quantity of secreted matter, it also swells, sometimes becoming as large as a child's head. An involuntary flow of matter from the spermatic vessels, which is often mixed with blood and mucus, constipation, a feeling of sickness, acute pains in the upper part of the thighs, which seem to spread to the lumbar region, etc., form, in addition to the already-mentioned increase of temperature of the body, the other symptoms of an inflammation of the spermatic vessels at its height. This circumstance is characteristic: While the mucilaginous flow of matter from the urinary passage lessens when a spermatic vessel becomes inflamed, it returns in its former abundance when the inflammation of the affected vessel abates. Even when gonorrhœa, in its acute form, may be regarded as a local disorder at the commencement of its appearance, it may yet disturb the bodily comfort more or less, through the irritation caused by the mucilaginous venereal fluid. This gives rise to a gonorrhœal metastasis, which is characterised by rheumatic pains in the region of the different muscles. In any case, four weeks at least must have elapsed from the time of receiving the infection to the time when the inflammation of the limb sets in. Another thing must be mentioned before I conclude, viz., gonorrhœal excrescences, as gonorrhœa is often accompanied by them. These closely resemble warts, and owe their existence to an irritation of the skin by the decomposed fluid venereal matter. They are generally situated in the prepuce (foreskin), or in the groove of the scrotum. The bodily comfort of the patient suffers also in acute gonorrhœa, through the quantity of venereal fluid matter which flows involuntarily, and through sleeplessness caused by the painful erections. With proper precaution and care, and in cases where no serious complications arise, the acute gonorrhœa lasts, as a rule, from four to six weeks. The pains gradually lessen, the running decreases, grows whiter and thinner, till at last it entirely disappears. But this termination does not always occur. The acute gonorrhœa very often changes into a chronic gonorrhœa, that remains in this stage for months, and even for years, when proper means to cure it are not used. The treatment of an acute gonorrhœa in its first stage should be as follows: The patient should take daily three or four baths (in which the trunk of the body should be quite in the water)—the temperature of the water should be from 82° to 86° F.; or sitz

baths would do in the place of the above—the temperature should be 86° F., and the patient should stay in the water as long as possible. Should the patient feel inclined to make water during the process of bathing, it would be better to make water in the bath, especially as the pains generally abate after this. In the time that elapses between one bath and another, a compress, which somewhat excites the skin, may be employed; the temperature of the compress should be from 73° to 77° F., which should be renewed from time to time. The affected part should be enveloped by a compress of double thickness; first, a compress of 73° F. should be applied before that of 77° F., and in both cases they should not have been wrung out much.

From the second or third week after the commencement of the disorder, that is to say, about the time when, in the normal course of gonorrhœa, the swelling of the mucous membrane in the urethra somewhat abates, one may also syringe the urinary passage with water having a temperature of 84° to 88° F., to which a few drops of fresh lemon juice may be added with advantage. One had better get the syringe represented in Fig. 111, which is made of glass, and which can easily be purchased under the name of ear syringe; but care must be taken that the point is not a sharp one. After filling the syringe with water as directed, put the point carefully into the urinary passage as far as possible, using the right hand for this purpose, while the left hand holds the member. Then press on the top of the syringe, so that the water enters the urethra gradually and carefully. It is of advantage to press the opening of the urinary passage together with the fingers of the left hand after the syringe has been drawn out, so that the fluid may remain in the urethra as long as possible. The injections, which are efficacious in clearing the urinary passage of urine, are best taken directly after making water, or after a bath, or when the compress is taken off. To prevent stiff stains from getting on the body-linen and bed-linen, as well as to avoid inflammation of the testicles, shrinking of the prepuce and tightness of the limb, but, above all, to meet or assist in curing any inflammation of the foreskin (prepuce), and of the extremity of the urinary passage, the bandage for venereal chancres (p. 914), which has been already mentioned, should be worn. Place the bandage round the scrotum, having first put aside the foreskin while it is applied, then replace the foreskin over

the thin bandage and the scrotum. This bandage is made of a thin, moist layer of chemically pure wadding or linen (it is sometimes called lint), and being pressed very flat, it can be greatly recommended in this case.

A few more particulars regarding the treatment of gonorrhœa may be given concerning the different methods of lessening pain. I recommend vapour baths, which are taken in a sitting posture; also fomentation of the abdomen and steaming compresses, which should be changed every eight or ten minutes, being allowed to remain the whole time on the member and region of the perinæum, on which they may be put six or eight times in succession. Concerning the treatment of phimosis (shrinking of the prepuce), I have expressed myself already in the above article, but wish to enumerate a few more remedies when the disorder is in an advanced state. The remedies consist of frequently syringing the inside of the prepuce, say, every two or three hours, with water of a temperature of 73° to 77° F., that the hardened matter in this part may be gradually removed; a thin, soft wadding compress, moistened with water of 73° F., may also be carefully applied under the affected foreskin. In order to lessen the intense pain in paraphimosis (or numbness of the member), sitz baths should be taken, in which the patient stays as long as possible, the water being 95° to 106° F. With these should be taken alternately baths of 73° to 77° F., which should also be taken in a sitting posture, and as often as possible, in order that the inflammation may abate or wholly disappear. It would be beneficial if the patient could remain from forty to fifty minutes, or even longer, in the aforesaid baths. After the bathing the affected member should always be enveloped in a thick, hot compress; the temperature of the water in which it is dipped should be 64° to 68° F., which should be renewed every five to eight minutes.

Severe pains caused by retention of the urine require sitz baths, or sitz vapour baths, of long duration, and of 95° to 106° F. Inflammation of the film surrounding the urethra requires an application which lessens the inflammation, especially when it has an inclination to have an admixture of mucus. The part affected should be enveloped, and a heat of 64° to 68° F. preserved, whilst steaming compresses, vapour baths taken in a sitting posture, etc., should be used. In a case of catarrh of the bladder, inflammation

of the kidneys, inflammation of the prostate, and stiffness of the joints, refer to the treatment already mentioned. For a case of stiffness of articulation, and in order to lessen the pain, vapour baths, taken whilst sitting on a cane chair, should be tried, and baths should also be taken in which the whole body can be in water of 95⁰ to 104⁰ F. Inflammation of the testicles requires the patient to rest in bed, and the affected part should be raised by putting a pillow under it. Three or four sitz baths, of 86⁰ F., should be taken daily, each bath being of half or three-quarters of an hour in duration. During the time that elapses between one bath and the next, a thick compress, of 73⁰ to 77⁰ F., should be first applied to the testicle, and then an extra compress, which has been loosely wrung, and has a temperature of 68⁰ to 72⁰ F. A bed vapour bath (No. 4) may also be taken occasionally with advantage. As regards buboes, they can often be cured by incision; in many cases they disappear without incision, when the symptoms are properly treated. Careful diet is most necessary to effect a cure of gonorrhœa. The food must be of a non-stimulating nature, a vegetable diet being recommended in order to avoid acrimony of the urine. Further, it is most essential, in the first stage of gonorrhœa, to avoid all food of a sloppy nature, such as soup, etc. Alcoholic as well as narcotic beverages must be strictly avoided. There are persons who say they can prove that they freed themselves from gonorrhœa although they acted contrary to this rule. It is only after the third week, when the disorder, as a rule, takes a turn for the better, that the patient may take a liquor of strawberries or lemons, or such cooling beverages, in order to keep the urine in a thin condition. A proper suspensory (see Fig. 423) is recommended, and should be worn by all those persons who are obliged to continue their bodily exertion. This is worn in order to prevent inflammation of the testicles.

Gonorrhœa of the Eyes (Gonorrhœal Ophthalmia). (See "Eye Diseases.")

Gonorrhœa in the Female. — A woman may be inoculated with gonorrhœal poison, and acquire the disease. This occurs not only to unchaste women, but it may be the fate of a respectable wife to be infected by her husband. While in males the disease attacks the membrane of the urethra, in females it not only lodges there, but attacks the mucous membrane of the vagina; the womb, by exception,

is seldom touched. It begins with itching and burning in the sexual organs, and by a discharge which is barely noticeable. In a few days violent pain is experienced, the private parts swell, the passage of urine becomes painful, the discharge increases, and becomes thick, yellow, or yellowish-green, and suppurating. The urethra discharges matter on being pressed, a symptom that does not occur anywhere else. Very often abscesses form on the membrane, which may extend to the innermost parts. The disease lasts two or three weeks; the symptoms diminish, the discharge becomes less angry and more slimy, but retains contagiousness to the very last.

The treatment is the same as for "Acute Catarrh of the Womb." The diet should be strictly vegetarian, much fruit and mucilaginous soup. Treatment on Kuhne's system is effectual, and shortens the attack. The patient should wear stimulating packs at night, 68° to 72° F., and cover the abdominal region entirely with very thick compresses, wrung out more or less in proportion to the degree of inflammation.

Gout (Podagra).—By gout we understand a change of matter, a disease of the entire organisation, actually arising from an unsuitable or excessive diet with insufficient exercise. Tendency to gout is generally inherited. Its development is increased by the use of a stimulating diet, such as rich meats, together with the use of strong wines and beer, little exercise, and defective evacuation. As a consequence, a sufficient overplus of uric acid is formed to permeate the juices and the blood, as well as those parts affected by gout, which is set up after previous inflammation. As a rule it attacks the rich and the drunkard. But it also attacks poor people, though they consume less meat, caviare, *pâte-de-foie-gras*, lobster mayonnaise, etc., but rather indulge to excess in oatmeal, cereals, carrots, cheese, etc., and on whose table refreshing, purifying fruit, green vegetables and salads hardly ever appear. Besides, a hard and exhausting life often occasions swellings very similar to gout in the joints of the poor, badly-nourished, anæmic woman. Gout is also a consequence of lead poisoning. Let us observe the clinical symptoms presented by gout. Long before the first attack of gout, as a rule, "warnings" are given in the form of loss of appetite, indigestion, hemorrhoids, palpitation, oppression in the chest, shortness of breath, dizziness, singing in the ears, depression of the spirits, drawing pains all over the

body; the urine is thick and turbid, and, after standing, has a sediment. Stout people particularly have to suffer a good deal from these premonitory, peculiar, and troublesome symptoms. These warnings, telling us that the constitution is upset, become more and more frequent and violent, until one fine day, or more probably at night, or in the early morning hours, the first attack of gout makes its appearance. The sufferer who, to all appearance, goes to bed in the best of health, is awakened from sleep by a fearful pain in the joint of his great toe. The pain, in many cases, increases to such a degree, that he, trembling all over, shakes the bed. Perspiration stands out on his forehead, while the rest of the skin is, as a rule, dry and heated. The pulse is full and rapid, the patient becomes more or less feverish, and experiences a terrible thirst. At dawn the symptoms decrease a little; acid offensive perspiration breaks out all over the skin, and the fever abates. The next day, although the pain still makes itself felt to a certain degree in the affected member, the patient feels pretty well; the joint looks inflamed, red, shining and swollen. The next, and, perhaps, the two or three following nights, bring back the pains of the first, and only after the lapse of a week or ten days is the attack really overcome. During this time the nightly attacks diminish in intensity, and the toe-joint resumes its ordinary appearance.

Acute gout, which, as we have seen, appears in the form of acute inflammation of the joint, may, in a single attack, reach its climax, and be done with once for all, if the patient will but moderate his diet, and begin to regulate his life in other ways, in strict accordance with hygienic principles. Meantime, "The way to hell is paved with good intentions," as an old proverb says, and the attempts at reformation on the part of habitual drunkards are generally handicapped by an immovable belief that they will starve if they fill their stomachs with any less rich food. So the attacks recur, in the earlier years of suffering, at the equinoxes, at the beginning of spring and autumn. The free intervals become shorter and shorter in the further progress of the disease; the attacks are less violent, but last longer every time, and attack other joints, until at last the patient is never quite free from gout, but suffers chronically. The joints never resume their normal appearance, as in acute gout, but chalky deposits are found in the ligaments and the membranes of

the joints, as well as all round them. These deposits, consisting of uric acid, vary in size, and are known as "gouty chalk stones." They cause temporary or lasting pains in the joints, but the pain is never so bad as in the acute form. The position of these deposits may be in the foot, knee, finger, hand, elbow, shoulder, collar-bone, hip or jaw. Now and then the chalk stones come through, after setting up inflammation, and the suppurating surface is then emptied of the uric acid. In protracted cases of chalk stones, the joints affected become quite immovable, so that the limbs are useless, and the patient can only move about painfully with the help of crutches. Beside the form of chalk stones described above, there is another, generally found as a cartilaginous deposit of uric acid; the nodules, about the size of a pea, are mostly found in the region of the ears. In acute, as well as in chronic cases, these stones are found in the internal organs, and it is according to their position that the gout is named—whether these organs are originally affected or in other ways—gout in the head, heart, stomach, intestines, kidneys, etc.

Chronic gout is very tedious. Whether they let it run its course, or commit the error of placing themselves under "scientific" treatment, the patients go from one weary stage to another, till at last they sink from sheer exhaustion.

The great desideratum in the treatment of either acute or chronic gout is a moderate diet. It should be simple, plain, and vegetarian. In acute cases the patient should take a good deal of liquid nourishment, especially water, with fresh lemon juice; acidulous fruit, raw, or cooked; meat must be taken only in very small quantities. Fat or smoked meat and fish, caviare, lobster, ripe cheese; rich sauces, especially rich, highly-spiced or acidulated sauces; wine, beer, coffee, etc., should be strictly avoided. But it is advisable to eat fruit in moderation, especially strawberries. Also a so-called "Lemon Treatment" (see "Lemons") has a good result in many cases.

Treatment for relieving pain in acute cases should begin with raising the limb of which the toe is affected. The whole foot and leg up to the knee should be wrapped in a pure woollen cloth or wadding, and against it should be laid two or three hot water bottles enveloped in damp coverings. If the patient can stand the damp heat vapour compresses, a rising temperature may be adopted in a foot bath, 95° to

104° F.; a foot vapour bath (Fig. 127), or bed vapour bath No. 4. After these baths for both feet, wash the feet with water, 81° F., stroke and knead the foot centripetally on which the affected joint is situated, or rub it with the bare hand, after dipping the hand in water at 77° F. Then wrap foot and leg once more in wool or wadding, and lay the hot water bottles near the foot again. By day the patient may take three or four hot foot baths, or foot vapour baths, for thirty and forty-five minutes, at intervals of about four hours. Between the baths lay on stimulating foot bandages, 68° to 72° F., body bandages at 77° to 81° F., together with an enema at 72° to 77° F.

Treatment of chronic gout consists in applying, once or twice daily, warm baths, the temperature of which may be carefully and gradually raised from 95° to 106° F., remaining in them fifteen to twenty-five minutes; weekly two or three bed vapour baths (No. 1 to 4), whole or partial; after becoming warm, apply packs, at 68° to 72° F., to the affected part. Massage of the same, and entire massage, should be applied once or twice a week.

Also the Passive and Resisting Movements of the Curative Gymnastics (in Figs. 205 to 207, Figs. 210 to 214) are useful in dissipating any stiffness that may remain in the joint. In the summer, sun baths may be extensively used. The most efficacious way of attaining a rational radical cure in chronic gout, as, indeed, in any case, is to find a well-managed Natural Treatment Institute, where massage, hydrotherapy, diet and curative gymnastics, applied intelligently, and with due regard to the idiosyncrasies of the patient, attain good results, and where no temptation is offered to the patient as regards pleasures of the table, and to act against the deepest meaning of the proverb, "The spirit is willing, but the flesh is weak."

Gout in the Joints. (See "Gout.")

Graham's Bread. (See Index.)

Grippe. (See "Influenza.")

Growths, Abnormal. — These are diseased new formations, such as cysts, polypi, cancers, etc., which owe their existence to abnormal development. (For further particulars see under the various headings.)

Gullet. (See "Digestion, Organs of.")

Gullet, Foreign Bodies in. (See "Suffocation and its Treatment.")

Gullet, Cancer of the, is a comparatively frequent disease. Men are more disposed to it than women. The complications resemble those of contraction of the gullet. The patient very soon looks extremely ill, and suffers the most violent pains. The duration of the disorder is from eighteen months to two years. The patient dies either of suffocation, or is starved to death, or mortification of the lungs, caused by rupture of the gullet and the penetration of particles of food into the lungs.

The treatment can only be palliative, and must go direct to the cause of the trouble. It consists in applying vapour compresses, or other gentle vapour treatment, to lessen the pain. To keep up the general strength, use frequent tepid baths, gentle ablutions, and general massage. Food must be given by means of a feeding tube.

Gullet, Catarrh of the. (See "Gullet, Inflammation of the.")

Gullet, Contraction of the, arises from formations (swellings, wart-like growths, cancer), and from the presence of foreign bodies in them, occasioned by goitre, dilation of the aorta, etc. Corrosions and burns may leave such scars behind as to cause a contraction. Trouble in swallowing is often the first indication of its presence. The patient, in trying to swallow the masticated food, has to make repeated efforts to do so; he feels an obstruction in the gullet, and instinctively tries to remove it by drinking after swallowing his food, as well as by better mastication and moistening the mouthfuls. In the later stages only fluids can be taken. Eventually it comes to rejection of the food, a longer or shorter period after eating. This is either unchanged, or covered with white mucus, and even, in bad cases, with blood and pus. The condition of the patient is always bad. He looks ill. Constipation sets up. Pain is felt at the time of eating, especially when the food is going through the contracted part. The general seat of the contraction is near the orifice of the stomach. Both the extent and the degree of contraction vary considerably, and can only be ascertained by the introduction of an œsophageal sound. The duration is also very uncertain; perfect recovery is rare and difficult. Cancer and distention of the aorta are always fatal, death resulting from starvation.

The treatment must be applied to the original cause. As surgical treatment is imperative, a doctor must be called in.

Gullet, Cramp of the.—Cramp in the gullet is a co-symptom of disorders of the brain, spinal cord, and nerves (hypochondriasis, hysteria, etc.); of diseases of the stomach and bowels, and a conspicuous feature in hydrophobia. The cramp comes on in attacks of different length and violence, and at irregular intervals. It comes on either while eating, or by looking at food, or even thinking about it. The patient feels as if his throat were painfully compressed, or as if a bullet came up from the stomach into the gullet, and had stuck half-way (*globus hystericus*). These feelings are combined with difficulty in breathing and oppression on the chest.

The treatment should be applied to the exciting cause. Relieving remedies for single attacks are either vapour compresses, laid four to six times successively on the breast and the stomach, for eight to ten minutes each; or baths rising from 95° to 107° F., remaining in for some time. The patient may take his meals in the latter on specified conditions. Massage of the breast, stomach, and abdomen are effectual.

Gullet, Enlargement of the, consists either of an expansion that may spread to any extent, though the entire length of the gullet is seldom affected, or an outward curve, generally packet-shaped, which is found as a circumscribed place. The curvature arises either from a growing together of neighbouring organs on the outer wall of the gullet, by which it is drawn into the shape of a funnel on the side where the growth is, or from pressure on the part of one of the sides of the gullet, which causes a packet-shaped swelling in a non-resistant part of the gullet. The symptoms are mainly difficulties in swallowing of various sorts. The patient feels as if the food taken did not reach the stomach, but remained stuck in the gullet. Sometimes difficulties of breathing, choking, palpitation, and fainting occur. The condition of the patient as regards taking food is very serious. In a severe case the food sinks partially into the packet-shaped swelling, becomes decomposed, and is brought up again. According to the position of the swelling which arises from pressure on neighbouring organs, blood vessels and nerves, it may result in varied, serious disorders of the general health. The suffering lasts many years, and generally ends fatally.

The treatment is the same as for "Gullet, Contraction of the," and also necessitates surgical measures. Patients have often to be fed for years together by a feeding tube.

Gullet, Inflammation of the; Catarrh of the Gullet.—Inflammation of the gullet mucous membrane is seldom an independent complaint, it generally appears in connection with diseases of the adjacent organs, or in general debility.

Foreign bodies that have been swallowed and become attached, the use of too hot or too cold food, of acid or pungent flavourings, may bring it on. Diseases of the gullet itself—dilatation, contraction, cancer, etc.; inflammation conveyed from the throat and stomach; protracted illness of a typhoid nature, or such as are connected with congestive symptoms in heart and lungs, bring on the secondary form. There is also a difference between acute and chronic catarrh of the gullet. The first never throws out mucus, in contradistinction to inflammatory affections of other membranes; but in chronic catarrh of the gullet there is a great accumulation of mucus. Gatherings on the membrane often occur in the course of the disease, which, however, confine themselves to the surface, and do not penetrate very deeply. The symptoms are depression of the spirits, and pains, which are either felt at one spot of the gullet, or extend all over it. They are either continual, or are felt only in swallowing or movements of the body. In every case troubles in swallowing, of different degrees, are present in varied forms.

The treatment must be applied to the exciting cause. The pain may be relieved by using vapour compresses and baths, rising from 95° to 104° F. Nourishment must be liquid, perfectly plain and cool. Pure lemonade is a very reliable remedy for abscesses. Foreign bodies in the gullet must be mechanically removed, owing to the depth at which they are situated. If swallowed acids or corrosive substances are the cause of the inflammation, follow the instructions given under "Stomach, Inflammation of the," and "Poisons."

Gullet, Paralysis of the, is often the accompaniment of troubles of the brain and spinal cord, or the consequence of chronic poisoning by alcohol or lead; it also follows diphtheria. If the gullet is only partially paralysed, fluids, administered to the patient in an upright position, reach the stomach, although a peculiar noise proves that the liquid only trickles down slowly, instead of entering the stomach in a

normal way. But if the paralysis is total, giving food occasions serious symptoms, violent choking, and oppression. The treatment should go to the root of the matter. The patient, in most cases, must be fed mechanically.

Gums, Inflammation of the; Gumboils. (See "Teeth, Disorders of.")

Gums, Periostitis of the. (See "Teeth, Disorders of.")

Gums, Pulpitis of the. (See "Teeth, Disorders of.")

Gums, Recession of the. (See "Teeth, Disorders of.")

Gums, Spongy. (See "Teeth, Disorders of.")

Gums, Swellings of the. (See "Teeth, Disorders of.")

Gut. (See "Digestion, Organs of.")

Gymnastics. (See Index.)

Gymnastics, Curative. (See Index.)

H.

Hair, the. — In a fully-developed hair we find three distinctive parts—the point (Fig. 16 i), with a tapering end; the root, implanted in the skin (Fig. 16 k) and ending in a knobby swelling; the bulb (Fig. 16 n). The bulb is planted in the scalp upon a wartlike excrescence, the papilla, which is specially rich in juices and nerves. In the papilla the actual growth of the hair takes place. It consists of numerous new cells, which push the hair already grown further outward. In respect to its construction, the hair corresponds in its three parts to that of the rest of the skin. The three parts are thus known: the medulla (Fig. 373 a), occupying the inmost part; the fibrous part (Fig. 373 b), which represents the coloured part of the hair; and the cortex (Fig. 373 c). The colour of the hair arises from an existing colouring matter, a so-called pigment which is found in the pigment cells of the shaft and bulb. Imagine a hair cut perpendicularly at its root, the order of the respective layers from outside inwards will appear as follows: First the cortex (Fig. 373 f); then the outer root sheath (Fig. 373 d); then the outer membrane, the cortex; and lastly the pulp or medulla. The hair follicle is a long cylindrical tube, which unfolds the root very closely, and penetrates into the subcutaneous cellular tissue, sometimes even into the fatty subcutaneous cell tissue. The length of the hair follicle is proportionate to the length

of the hair that grows out of it. It consists of three sheaths, outer, middle, and inner.

The two root sheaths (Fig. 373 d, e) represent the outer membranes of the hair follicle. Nearly the whole body is covered with hair, but only a few parts, such as the lips, the upper eyelid, palm of the hand, the soles of the feet, the back of the fingers and toes, have no hair on them. The short soft hair is called "down." The hair of the beard is generally the coarsest. The hair of the head sometimes

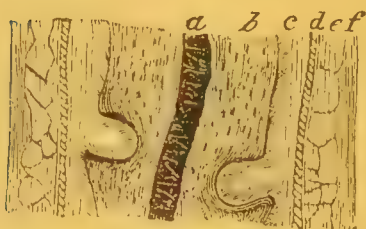


Fig. 373. Piece of the Root of a Dark Hair.

(Magnified about 200 times.)

- a. Central part, or medulla. b. Fibrous portion, containing pigment granules.
- c. The cortex. d. Inner root sheath.
- e. External root sheath. f. Wall of the hair follicle.

attains a length of forty inches, that of the beard about twenty. A hair can only grow a certain length, when it has reached that it falls out. The usual length of time that a hair remains in the head varies from two to seven years. The widespread idea that cutting the hair from time to time tends to its growth is a mistake. The advantage gained by cutting the hair is that it can be more easily kept clean, and indirectly the hair is preserved in this way. The

natural gloss of the hair arises from certain sebaceous glands, which lubricate the hair tube by conveying their oily contents to it.

Hair, Care of the. — Instead of giving any special description of the diseases to which hair is liable, it would be better, according to the principle of the Natural Treatment, that "Prevention is better than cure," to give a few general hints on the treatment of the hair in this place. The hair of the head, whose abundance is rightly considered a great ornament, requires careful attention, no less than any other part of the body, to ensure its proper growth. It may seldom appear so, but it is a fact that many of the peculiarities of the hair are inherited. In many families the members lose the hair very young, or, at any rate, many of them, while in others the men and women preserve a fine head of hair to very old age. That continual mental activity, certain phases of general weakness, especially constitutional diseases, do further the falling out of the hair, is undoubtedly a fact. In many cases the loss of hair is caused by wearing heavy,

narrow, unventilated headgear. As a rule, it arises from constitutional weakness, and in such cases every one should fight against the exciting cause by adopting the General Strengthening Treatment. In local treatment, the actual care of the hair should be as follows: The weaker the hair the more care it requires. Mothers notice that their children who have thin hair also have a thin sensitive scalp, and that unless an efficacious treatment of the hair be adopted, this poor growth in future may even lead to premature baldness. In dressing the hair, wide combs with blunt teeth, and soft brushes, are to be used. Stiff brushes irritate the scalp too much, and closely-set and sharp teeth of combs pull out healthy hair. Nothing can be worse than "grooming" short hair with very stiff brushes. You would be surprised if you could see the harm done, by means of a magnifying glass. And this mistake reaches its climax in the use of wire brushes, which have been aptly named "hair exterminators." Parting the hair is so far injurious, that the growth on the exposed places is stopped. But still more injurious and fatal for the hair is the popular "singeing." Apart from the burning of the hair, it sets up an intense dryness. The hair becomes brittle and comes out. Hair dyes are always injurious; but if they are indispensable, use one which contains neither lead, copper, potash or ammonia.

As regards greasing the hair, this must only be done at rare intervals, and after a washing of the head—to which it will again lead later on. Use oil or pomade; see that they are fresh, and when scented, see that the perfume is of the simplest kind. Lanoline is the most efficacious, as it possesses the property of penetrating into the capillary tissues, and making the hair soft. Lanoline pomades are known by the fact, that when a little has been applied the hair does not feel greasy. Other pomades do not possess this property; they are not sufficiently absorbed, and are not very useful, as the aim of pomades is to afford the hair the lacking natural grease. Women's hair, to keep it in good order, should be well brushed and combed at night, lightly twisted and gathered into a net. Wearing a nightcap is not healthy, as it prevents the perspiration of the scalp.

It is better to keep the head cool, and give oneself the benefit of refreshing, strengthening sleep. Ladies whose hair falls out often complain it comes off "in handfuls," and even with the "root." The fact is that they see a small bulb at

the end of the hair, and make themselves very unhappy about it. For their satisfaction, an observation by a famous hair specialist, Dr. Pinkus, of Berlin, may be quoted. He says: "Every hair that falls out must have a little knob, and the larger this is the greater the prospect of its being replaced by a new hair." Even quite healthy people experience a continuous normal loss of hair on its attaining to its full length. The falling out of short hairs, split hairs, and hair having roots, and which stick in the comb and brush, indicates a sickly abnormal condition. The difference between a normal and abnormal hair can be most clearly shown by measuring single hairs. If, by repeated measurement, it is proved that about a quarter of these are less than four-and-a-half to five-and-a-half inches, it may be concluded that the hair is in a weak state. The splitting of hairs arises from too great dryness, or from want of nourishment in the scalp. This usually occurs in conjunction with an illness or a poor constitution. Great injury is done by improper treatment during school years. The time before school is often short, so the hair is hastily and carelessly plaited, and a good deal is pulled out. If there is not sufficient time to plait it, it is better to cut it short. Above all, periodic cleansing of the hair and scalp with soap and water must not be neglected. Wash the hair once or twice a month, at bedtime, with tepid soap and water, and dry it carefully afterwards with a soft towel. If it is washed too frequently, a feeling of stiffness and dryness is felt in the skin, accompanied by increasing scurfiness. The best soap should always be used, which must not contain alkali. It is well to precede the washing by rubbing the scalp with the yolk of a new-laid egg. An excellent and safe wash is made as follows: a dessert-spoonful of white or rye bran is put into a saucepan of boiling water. Let it boil five minutes. Strain the liquor through a cloth, and use it tepid or cold. After using this, apply a pomatum or oil. Beware of quack remedies for increasing the growth, and go bareheaded into the outer air. The hair needs light and air for its wellbeing, just as much as anything on earth that grows and has life and movement.

Hair, Turning Grey of the. — The turning grey of the hair has for its cause a lack of colouring matter in the hair. This condition generally begins on the two temples, and gradually proceeds from here up to the scalp. The hair is either immediately turned grey the moment it appears, or

turns grey after it has reached a certain length, no colouring matter now reaching it. A grey hair that has fallen out, or that has been pulled out, is always replaced by a new grey hair. This fact may be taken note of by my honoured readers who possess the virtue of vanity in a high degree, and who may wish, by pulling out their grey hairs, to further prolong the evidence of youth. It is only where, as the result of disease of some individual nerve-stems, in consequence of which the hair partially turns grey, that there can be any hope of this trouble being removed, and of hair of its original colour growing again. This process also offers the explanation of the fact that violent injurious influences acting upon the nervous system hinder the development of colouring matter in the hair; that, for instance, depression of spirits, a great fright or violent fear, care and trouble, bring about the turning grey of the hair. The Natural Curative Treatment does not recognise any remedy against the turning grey of the hair, when the predisposition thereto is present.

Half Pack. (See Index.)

Hand Pack. (See Index.)

Hanging, Treatment of Individuals suffering from.—A cord tightly bound round the neck produces effects of two kinds. It powerfully interrupts the access of air to the lungs, and thereby brings about suffocation; it hinders, through pressure, the flow of blood from the brain, and thus produces stupor. The blood vessels of the throat and of the head swell out full of blood in the case of a person who has been hanged or throttled; the colour of the face becomes blue, the face is turgid and the eyes project from their sockets. Stupor sets in, in the case of people who are killed by hanging, before the suffocation, or, rather, before the feeling of suffocation, since one can more easily bear the want of access of air than the pressure on the brain caused by its congestion. Death generally is brought about, in the case of persons hanged, by means of stupor, hanging is therefore one of the most agreeable kinds of death. In consequence of the congestion of the brain, there arises immediately before death the involuntary evacuation of excrement, and the involuntary emptying of the bladder. In the case of males, there is frequently loss of semen, and in the case of women a secretion of mucus from the vagina. The body of a person who has been hanged remains for a long time warm and pliable. It always shows a bloodshot

strangulation mark around the throat. When these appearances are wanting, especially those of sexual excitement having taken place, then one may conclude with certainty that the hanged person was already a corpse when hanged.

On discovering a hanged person,* one must, unless the signs of certain death are already evident, institute attempts to revive him in the following manner: The cord must be at once cut, the body being at the same time held with one arm, so that he may not be injured by falling. The clothes must immediately be cut away from the upper part of the body. Lay the ear over the region of the heart, and listen to hear if it can still be heard beating, or tightly bandage the upper arm of the hanged person above the elbow. If the fore-arm becomes red, and its veins stand out, then one may assume with certainty that life is not yet extinct. Then rapidly cleanse the mouth and nose of any mucus, and blow into the mouth of the hanged person, through a thin cloth that has been laid over his mouth, laying one's own mouth on his mouth, and holding his nostrils closed with one hand. The time in which the operator draws his breath will be used by the apparent-dead for expiration. If he does not like to adopt this procedure, then artificial breathing should be at once resorted to. If automatic respiratory movements set in, take the hanged person into the nearest house, where his face can be sprinkled with cold water, and where one can carry out a damp, cold friction (see under this head), rubbing, very violently, especially the hands and the feet and the soles of the feet. Here the whole thing is, rub, rub, rub till the skin reddens; or make use of Kneipp's shower bath (see under this head), or of the pouring over of cold water. A cold enema, at from 52° to 56° F., may also be given. The revived person will, for a long time, require very careful treatment and nursing, which should consist, for the most part, in the adoption of the rules for the General Strengthening or Tonic Treatment. The mark of hanging round the neck very often becomes the site of inflammation, and this must be treated with cooling compresses.

* One is in all circumstances justified, and indeed bound, by his own conscience, to cut down any hanged person, not an executed criminal, whom he may find, to loosen the noose, if signs of decomposition have not already appeared. Then send, first to a doctor and then to the police, but not wait until their arrival before commencing efforts at revival.

Hardening. (See Index.)

Hay Flower Baths, Full, Sitz, Foot (Warm), according to Kneipp. (See Index.)

Hay Flower Whole, Full, Under, or Short Wrappings (Shawl), according to Kneipp. (See Index.)

Headache. — Headache is one of the commonest ailments, nevertheless, it is never an independent one, but always the symptom of a further abnormal condition of the body. Feverish illnesses, affections of the nerves and digestive organs, as also of the brain, are very frequently accompanied by headache. And just as its causes are innumerable, so are also its forms. They range from the veriest little discomfort, and increase in intensity to the point of unbearableness, and so on to despair and insanity. The violence of headache corresponds in no way to the gravity of the disease, at least the degree of pain admits of no certain conclusion on the kind and development of the fundamental cause. Headache is scientifically divided into two kinds: 1st, "idiopathic," such as results from disease of the organs of the head; 2nd, "sympathetic," those which arise from disease of other organs, or are reflex symptoms of further organic derangement. But it had best be said here that this division is not absolute and infallible, as many cases of headache occur in which it is impossible to determine where the one section ends and the other begins.

A distinction in the following groups may be more promising for the wants of the practical man:

First: Gastric headache is the result of a disorganised stomach, and is accompanied by eructations, sickness, vomiting sensations, coated tongue, clogged taste in the mouth, loss of appetite, etc. Its seat is in the cavities of the forehead and eyes. The pain is also usually accompanied by a feeling of heaviness and pressure in the forehead.

The treatment should be considered in reference to the removal of the fundamental cause. (For reference, see "Digestion, Weakness of," and "Digestion, disturbed.")

Second: Gastric catarrh headache is generally the result of influences of cold on the stomach. It often shows itself as attendant upon chronic stomachic catarrh. Its seat is usually in the interior of the eye cavity.

The treatment must be directed to the removal of the fundamental cause. (Refer to art. on "Stomach, Chronic Catarrh of the.")

Gastric, bilious headache has its seat in one of the eye cavities, or in the back of each, or, as is usually the case, in the middle of the forehead. The pain is accompanied by fever, stomachic pressure, sickness, retching, yellowish coated tongue, bad taste in the mouth, bitter, bad smelling eructations, constipation, disgust at all kinds of food, nausea, etc. Sometimes the whole of the eye is of a yellowish colour. The treatment is the same as in the cure of stomach derangement. (See "Digestion, disturbed.")

Third: Rheumatic headache is found in different forms in people subject to rheumatism, or predisposed to it, after the most trifling cold, especially when the head has been perspiring under the blankets and is suddenly uncovered. Frequently, also, the change of locality of a rheumatic disease takes place from other parts of the body to the head. The pain is pulsating, and has its seat, for the most part, in the sinewy external skin of the skull, which can only be moved with great pain. But rheumatic affection is also found in the hard brain membrane (*dura mater*). Should the brain cavity form its seat, watery eyes, great aversion to light, a running at the nose, and disinclination for all mental activity, are symptomatic. In many cases rheumatic headache is chronic. Should the bone membrane of the skull be rheumatically affected, the pain, which comes on gradually, is very violent, and spreads throughout the entire head, accompanied by giddiness, disturbances of speech and hearing, swelling of the skull, etc. Rheumatism of the muscles of the head, generally confined to the female sex, is mostly partial; it occurs in the muscles of the temples and back of the head, and is liable to extend to the sinewy covering of the skull. The pains are irritating and contracted, and increase in force through pressure, or by motion of the affected muscles.

The treatment must be directed to the removal of the fundamental cause. (Refer to "Rheumatism.")

In cases of threatened or actual affection of the brain, in consequence of rheumatism, the treatment should be according to that for congestion and inflammation of the hard brain membrane.

Fourth: Rheumatic nerve pain in the integument of the head is generally burning and irritating, and generally confines itself exclusively to one half of the head. Slight motion of the affected part seems to increase, and stronger pressure to decrease the force of the pain. In the initiatory stage it

is continuous and of great intensity. Subsequently it is intermittent with absolute freedom, and then presents a purely neuralgic character.

The treatment is the same as that for rheumatic headache.

Fifth: Nervous headache, according to its multifarious fundamental causes, presents itself in many different forms. It attacks, for the most part, nervously constituted, hysterical, or hypochondriacal subjects, as also great thinkers and brain workers of all kinds. The pain, which is of a stinging character, comes on suddenly, but its continuance is mostly short. When attacked, the patient becomes either more excited and irritable, or indifferent and blunted in his otherwise normally nervous condition. The pain is sometimes intermittent, and this is caused by brain affections, mental or bodily over-exertion, lowering of temperature, presence of thunder, etc. Cramp and giddiness are brought on. Headache caused by weakening influences, as, for example, long-lasting inactivity, loss of blood or juices, excesses "in venere," etc., incipient pulsating headache in the back of the head, are all of the nervous kind.

Hysterical headache (compare the art. on "Hysteria") causes the sufferer the sensation as if a nail were being driven into his temple (*clavis hystericus*). This is quite characteristic. This particular headache comes on especially with menstruation. A special kind of nervous headache is "megrim," or pain in one side of the head. A very common trouble it is, and either inherited or acquired. Hysterical, poor-blooded women, suffering from green sickness, are especially attacked by it during menstruation. Mental excitements, as anger, sorrow, etc., form favourable conditions for its action; also, nervously-constituted men frequently suffer from it. Lively, high-spirited, sensitive natures suffer more from it than the dull, who are generally scot free.

An attack of megrim shows the following symptoms: Yawning, colds and chills, flushing, discomfort, pressure in the head, retching, physical depression, etc. These indications may last for several hours. The attack commences moderately, and gradually increases in intensity, with violent, cutting, grinding, piercing, pressing pains, seated in the forehead, either partially or wholly. It then extends to the back of the head, and is intensified by casual coughing, or bending or shaking of the body. The organs of sight and hearing are also sympathetically affected, and on this account shade

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and tranquillity are desirable. The stomach is also irritated, ejecting its food, together with bile and mucus. The pains, which proceed from the affected organs of the brain cavity, may last for from one to two days. The attacks end in sleep, during which the patient still suffers, but awakes relieved and freed from pain. In the frequency of its occurrence, the ailment is subject to considerable fluctuation. Days, or even years, may intervene between successive attacks.

The treatment of nervous headache must chiefly be directed to the removal of the fundamental cause. When this is hysteria, hypochondria, nerve weakness, green sickness, anæmia, the treatment given in their relative articles should be applied. For the removal of consequences attendant upon loss of blood or juices, the General Health Treatment is requisite. There are large numbers of prescriptions—domestic and chemical—recommended for megrim, but their effect is generally negative. The Natural Curative Treatment recommends for the removal of headache, apparently proceeding from nerve weaknesses, the application of the General Strengthening Treatment, and, for the amelioration and diminution of single attacks, the following palliatives: Lying tranquilly in bed or on a sofa, in the horizontal position, in a darkened room; taking an aperient enema at 73° to 77° F., together with a subsequent small cold one at 63° F. Cold feet require the application of hot water bottles encased in damp cloths. Water seasoned with lemon or raspberry, weak strawberry-leaf tea, etc., are the best drinks. Having rested for some time, for its further removal, a half-bath at 86° to 90° F., or a body bath at 84° to 88° F., or a sitz bath at 86° to 90° F., lasting from ten to fifteen minutes, should be taken. The bathed parts should be softly dabbed over, and there should be a further application of stimulating body and calf packs at 73° to 77° F. Thick, soothing compresses, at 78° F., renewed at intervals, should be placed on the forehead and body; when the face is cold and pale, apply steam compresses to the head and forehead. Finally, megrim, resulting from plethora, should, in addition to aforesaid treatment, have further massage of neck and stomach. Megrim induced through insufficient blood in the head should have such conducted to it by means also of massage. (Refer to observations on p. 668.)

Sixth: Plethoric and congestive headache, as indicated by their appellations, are either caused by a continuous plethoric state of the body, or by continual flow of blood to

the brain. When plethora is present in the brain and its membrane, the pain generally extends throughout the whole head. The causes of plethoric headache, as also its attendant ailments, are, for the most part, similar to those of brain plethora, and have already been described by me in their relative articles. The treatment is also similar to the one there prescribed. The congestive headache, characterised by a dull, heavy pressure, is accompanied by giddiness, a feeling of compression of the head, light and dark specks before the eyes, noises in the ears, etc., and proceeds mostly from formations in the lower body (hemorrhoids, etc.). The treatment requires removal of the fundamental cause. (Compare art. on Hemorrhoids). Palliatives such as those prescribed for brain plethora should be applied. Frequently, by suppressed menstruation, a so-called menstrual headache is experienced by females. The pain is dull and penetrating, has its seat in the back of the head and nape of the neck, and is accompanied by giddiness, compression of the entire surface of the head, tingling of the ears, etc. The treatment must be applied for the immediate restoration of menstruation. (See Women, Diseases of: Menstruation — its Non or Excessive Appearances.)

For headache caused by congestion of the arteries of the brain, insufficient blood in the brain, inflammation of the brain, concussion of the brain, tumours on the brain, inflammation of the brain and membranes of the spinal cord, through syphilitic causes (especially bone excrescences on the surface of the brain), smallpox, influenza, measles, scarlet fever, scrofula, gout, spleen and kidney affections, etc. (See their relative articles.)

Headache on one side of the Head. (See “Headache.”)

Head and Nape, Cramp of. (See “Brain and Brain Membranes, Inflammation of, Epidemical.”)

Head Baths. (See Index.)

Head, Congestion of. (See “Brain, Congestion of the.”)

Head Douche (Kneipp). (See Index.)

Head, Eczema of. (See “Scald Head.”)

Head, Erysipelas of. (See “Erysipelas.”)

Head Gout. (See “Gout.”)

Head Lice. — The head louse (*pediculus capitis*) (Fig. 374) is a parasite with proboscis. Its species is to be met with only in the human hair. Their distribution takes place either

by transportation or incubation. They cause an insupportable itching, that people try to remove by scratching. In consequence of this irritation, the scalp sometimes breaks out

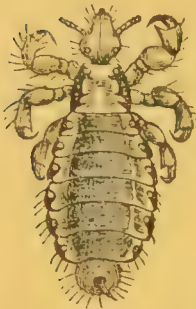


Fig. 374. Head Louse.

(Greatly magnified.)

into moist tetter. Head lice can only be removed by careful and repeated washing in tepid soap-suds, subsequent combing of the hair with a small comb (so called tooth-comb), and keeping it in a clean and healthy condition. In contradistinction to the head louse, stands the body louse (*pediculus vestimenti*), which settles on the breast and on the clothing of man. They are expelled by washing and change of clothing, and anointing, with an ointment made of four parts of green soap and one of cooking salt. Parasites are removed from clothing most readily if they are placed

in a well-heated oven. Danger of burning is avoided by placing boards underneath the clothing.

Head Massage. (See Index.)

Head Packs. (See Index.)

Head-wrap according to Kneipp. (See Index.)

Hæmaturia, or passing blood with the urine, is the name given to a condition in which urine coloured with blood, or urine containing a large number of red blood corpuscles, is passed. This distinguishing symptom is of very great importance, for if the solution of the red blood corpuscles in the urine has already taken place, then it is only the colouring matter of the blood — (see end of this article) — but no blood, that is contained in the urine.

Hæmaturia arises as a consequence of the various diseases of the kidneys, the pelvis of the kidneys, the bladder, the urethra, or of the ureters.

Bleeding from the kidneys may be brought about by diseases of the vessels of the kidneys, by inflammation or proliferation of the tissues of the kidneys; by external injuries of the kidneys, through stabs or pinchings, or pressure consequent upon a fall on the back, or from beatings; through catching cold, in consequence of scrofula or excessive application of the "walking in water" or of the "water treading," or excess in making use of the "Kneipp Treatment;" through poisoning by drugs (as, for instance, through the external use of carbolic acid, mercurial preparations, etc.,

or through the internal use of salicylic acid, quinine, turpentine, and other "remedial poisons"). Finally, through diseases of the blood (bleeding disease, blood spots, black smallpox or smallpox, scurvy, etc.).

Bleeding from the bladder may be a consequence of cancer of the bladder, of the presence of stone in the bladder, of violent inflammation of the bladder, and sometimes of hemorrhoids in the bladder. Bleeding from the urethra generally arises as a consequence of mechanical injuries or wounds, as, for instance, in the case of unskilful use of the catheter, or of the use of the catheter attended by great difficulties; in cases of stricture or deposits of pointed stones in the bladder or kidneys, etc. Bleeding from the ureter, as well as from the pelvis of the kidneys, is sometimes an accompanying phenomena of acute infectious diseases (scarlet fever, chlorosis, etc.), and sometimes they are conditioned by certain forms of tuberculosis, in which the formation of stones in the kidneys takes place.

Now, in order to know which is the source of the bleeding in each particular case, one must note the following characteristic differences: In cases of bleeding from the kidneys the blood is equally mixed with the urine, and the latter usually contains more albumen than that corresponding to the amount of blood it contains. With the magnifying glass one finds in the deposit left by the urine constituents formed by the kidneys. Pains in the kidneys and in the sacral region (at the lower part of the back) often supply us with an indication of the origin of the bleeding.

In bleeding from the bladder, the urine is at first clear, and only later does the urine contain blood in any considerable quantity, at times also mingled with it in the form of blood coagulum. The secretion of the urine causes pains in the bladder, and other troubles proceeding from complaints of the bladder. Bleeding from the urethra can be recognised by only very small quantities of blood being present in the urine; at the same time there is a burning sensation in the urethra. Bleedings from the urethra and from the pelvis of the kidneys are characterised by the presence of cylindrical cells, together with blood in the urine. The secretion is generally accompanied by colic-like pains in the region of the kidneys.

The treatment of hæmaturia is directed according to the fundamental cause of the disease. The removal of the cause is the first point to be kept in view in the curative

treatment. In the case of violent, strong, and frequently repeated bleedings, it is advisable that the patient should remain in bed in a horizontal position, should take cool, fluid, perfectly non-exciting, food (avoiding meat diet and all sour articles, and in vegetables avoiding all such as asparagus, celery, parsley, horse-radish, etc.); he should have stimulating three-quarter packs at from 73° to 77° F., or reclining vapour baths No. 3 or No. 4, with extra compresses at from 64° to 68° F. on the kidneys, or on the region of the bladder (in those cases where both organs are diseased, simultaneous compresses should be applied to the region of the kidneys and to the region of the bladder). Cool enemas (to be retained) at from 64° to 68° F., and sitz baths or trunk baths, both at a temperature of from 77° to 86° F., and of a duration of from fifteen to twenty minutes.

Very often the urine is observed to be tinged with blood in certain individual forms of disease, such as typhus (typhoid fever), diphtheria, traumatic erysipelas, ague, puerperal fever, scurvy, rheumatism, and also bleeding diseases, blood spots, etc.; also after poisoning by sulphur and hydrochloric acid preparations, with chlorate of potash, etc., often even the urine in such cases has the appearance of black-currant wine.

After the urine has been standing for some time a granular brown deposit is formed in it, which only contains either a small and vanishing mass of red blood corpuscles or none at all. In this case we have to deal, not with bloody urine, but with what is called urine tinged with the colouring matter of the blood, which exhibits a mixture of urine and dissolved blood-colouring matter. When this phenomenon is observed, a decomposition of a large number of red blood corpuscles is going on within the blood vessels, and the kidneys secrete the hæmoglobin, or blood-colouring matter, which is no longer united with the blood corpuscles. The treatment of this disease must be directed to the removal of the primary disease. For the rest the curative directions given under the heading of "Hæmaturia" should be taken into consideration.

Hæmophilia is the name given to a peculiar disposition of the body to profuse bleeding, which may take place either independently, or as the result of very slight causes, as, for instance, extremely insignificant wounds or injuries. The bleeding is very hard indeed to stop, so that a needle-

prick for instance, or the bleeding of the nose, or a tooth extraction, etc., may even end in death.

Small injuries are generally more dangerous to life than greater ones. The predisposition to this disease is congenital, that is to say, children are born with it, and it is hereditarily transmitted, mostly, however, in the male line and more rarely in the female line; in women who are subject to bleeding disease, menstruation may be dangerous. Many bleeders die in the years of childhood, when the milk teeth fall out, or when some slight accident happens, causing an insignificant injury, or on attaining puberty they die from pernicious anæmia. (See under "Bloodlessness.") "Bleeders" have generally a fine, pale, transparent complexion, a delicate skin, through which the blood vessels and veins lying near to the surface show of a blue colour; they are easily excited, and are, as a rule, hasty-tempered. The blood lost is generally of a bright red, watery appearance, does not coagulate, and decomposes very easily.

The bleeder shows, when the bleeding sets in, all the characteristic signs of bleeding to death—weakness, yellowish, waxy, pale appearance of the skin, palpitation of the heart, giddiness, restlessness, etc.

The most frequent hemorrhages that arise, independently of external causes, occur from the mouth, the nose, and the intestines. The causes of bleeding disease are probably to be found in abnormal conditions of the constitution of the blood (a lack of fibrin), or in an abnormally thin condition of the walls of the blood vessels.

The treatment consists chiefly in stopping the bleeding, which is a very difficult matter. The bleeder must therefore take very great care to avoid all scratches and injuries of the skin, and must carry out the rules of the General Strengthening or Tonic Treatment, in order to improve the constitution of the blood. Also the treatment for the cure of chlorosis, already given, may well be adopted. A strictly vegetarian diet, avoiding meat and all alcoholic and narcotic drinks, is very important. The Cold Water Treatment, especially the application of quite cold water in any form, acts injuriously. When, however, the patient bleeds, let him apply elastic bandages. (See with reference to this under "Bleeding.")

Hæmostatic. (See "Bleeding.")

Hearing, Difficulty of. (See "Ear Diseases.")

Heart, the. — The heart is the centre of the circulation of the blood, and is closely connected with every vein and artery. It is a fleshy, hollow, muscular organ, oval in shape. Its size corresponds with the fist of its owner, and its weight is about ten to twelve ounces in a man, in a woman, eight to ten ounces. It is enclosed in a membrane, the pericardium (Fig. 375 q), and is covered with a very thin,

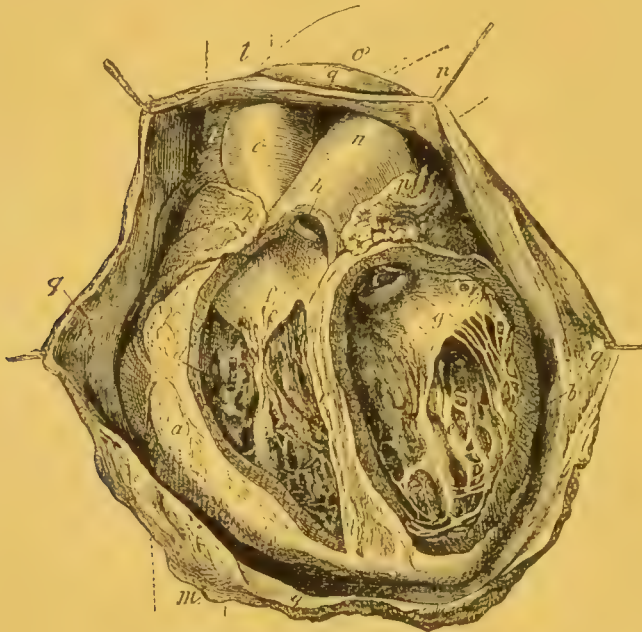


Fig. 375. The Human Heart.

(The anterior wall of the ventricles has been cut away—the pericardium, or heart-sack, has been opened and laid back.)

a. Wall of right ventricle. b. Wall of left ventricle. c. Septum between right and left ventricle. d. Cavity of right ventricle. e. Cavity of left ventricle. f. Tricuspid valve. g. Mitral valve. h. Entrance to the pulmonary artery. i. Entrance to the aorta (both these openings are guarded by three semi-lunar valves). k. Right auricle. l. Superior. m. Inferior vena cava. n. Pulmonary artery. o. Aorta. p. Left auricle. q. Pericardium, or heart-sack.

delicate skin. I have already described its position in the thorax, and its division into various parts, under the heading "Thorax and Abdomen, Organs of the," and to prevent repetition I refer the reader to that article. The reader will have already learnt that the heart is divided longitudinally into two halves, a right and left, by a muscular septum (Fig. 375 c), each of which is again divided by a transverse partition into an upper and lower part, each again connected with the other through a large opening in this partition.

Thus the heart contains four chambers, of which the two superior are termed the auricles, the inferior the ventricles. Each auricle is connected with the ventricle beneath it by an opening termed the auriculo-ventricular orifice.

Besides these, there is in each ventricle a round opening. That in the right ventricle is the opening into the pulmonary artery, that in the left into the aorta. Thus, as we see, there are in each partition two, altogether four, orifices, and to close these, thin valves are attached. These valves are semi-lunar at the orifices of the pulmonary artery and the

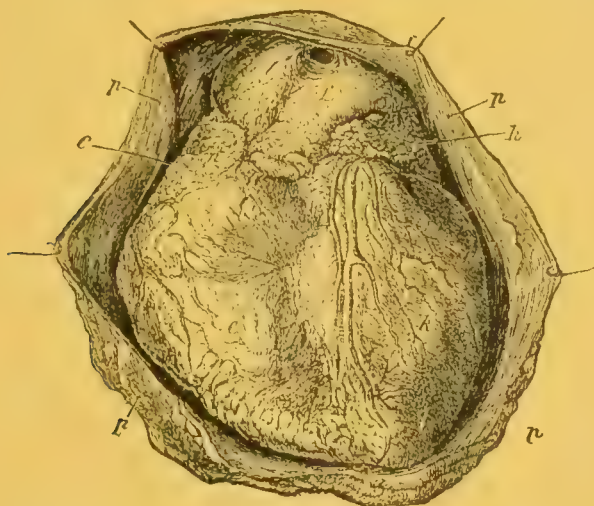


Fig. 376. The Human Heart.

(Seen from the front.)

The heart is lying in the pericardium, which has been laid open and kept back by hooks. The illustration shows the arteries and veins supplying the heart. c. Right auricle. e. Right ventricle. f. Pulmonary artery. h. Left auricle. k. Left ventricle. l. Aorta. n. Right auricular appendage. p. Pericardium. q. Apex of heart.

aorta; there are three at each orifice of the arteries. The valve at the orifice of the right auricle (Fig. 375 f) is tricuspid, or three-pointed, those on the left mitral, or two-pointed (Fig. 375 q). The semi-lunar valves prevent the return flow of the blood from the two great arteries into the ventricles; the pointed valves, the re-flow from the ventricles into the auricles. (See further, under "Blood, Circulation of the.")

Heart, Air in the Pericardium of the.—This may arise either from external causes — through an opening (injury or wound by stabbing or shooting), permitting the entrance of air, or through an internal opening, by means of which

an adjacent organ containing air is connected with the pericardium. Congestion of the lungs and stomach, which accompanies fistulous formations, gases arising from an inflamed or foul discharge in the pericardium, cause an entrance of air. The symptoms are often concealed by those of the primary disorder. But when a large quantity of air gathers in the pericardium, difficulty of breathing, pains in the cardiac region, weak, galloping pulse, chilliness and paleness ensue, followed by collapse, delirium, etc., as forerunners of death. The symptoms are as follows:

When the patient is lying on his back, a clear, hollow sound is audible on percussion. In any other position, sitting up or lying on the side, the same will be heard, while under him, or at his side, a dull sound would result. The stethoscope brings out strong metallic ringing heart sounds. But in case of an accompanying congestion they will be faint and weak, or even inaudible.

When the disease is caused by outward mechanical injuries, it is frequently curable; but should the disorder arise from internal causes, it generally ends fatally.

The treatment must reach the main trouble. Further, that given under the heading "Heart, Inflammation of the Pericardium," may be adopted. But the compresses round the region of the heart must not be soothing, but rather be applied as stimulants, 70° to 77° F. If the feet are cold, put hot water bottles, wrapped in a damp covering, to them. The diet must be mild and non-heating.

Heart, Atrophy of the.—This disease is observable in wasting of the muscles of the heart in old age, when, by the so-called decay of old age (senile decay), an inner and noble organ is affected. Heartatrophy is the result of wasting disease by protracted loss of substance, as in the case of consumption, cancer, typhus, diabetes. In short, decrease of the substance of the heart may be constitutional at birth, and medical opinion places it in direct connection with green sickness; but from the very diversified evidence of the Faculty, and the difficulty of obtaining an unanimity of diagnosis, the symptoms presented may just as well be attributed to a further disease of the heart, especially in the ramifications of the same (compare the articles relating to it), as to the disease itself. The treatment therefore in dubious cases consists, for the most part, in following the rules for bracing the general health.

Heart, Dilatation of the. — When the different cavities of the heart experience a convulsive expansion, it is called "Dilatation." It is generally the muscular partition of the right ventricle that is so affected, as this is exposed to a constant, increasing pressure of the blood, to which it is able to offer no opposition. Causes of this disease are: Disorders of the heart itself, infectious diseases, great physical exertion, etc., from which a lack of nourishment to the muscular tissue results; also obstructions in the circulation (as in valvular diseases is always the case) in those cavities from which the blood is expelled with difficulty.

In such cases the inner wall during contraction is burdened with an increased pressure of blood.* The cardiac muscle is unable to overcome this unusual mass of blood, and the result is obstruction in the circulation and an imperfect distribution of blood. At first the heart tries, by greater contraction, to overcome the fresh condition, but at a later stage of the disease, when the muscles have become weakened and dilatation has set in, the bad consequences of an insufficient circulation become more apparent.

Dilatation is known by the following subjective and physical symptoms: Frequent fainting fits, especially if, as a result of the dilatation of the left ventricle and a defective flow of blood to the arteries, an overflow into the pulmonary vessels takes place while the brain vessels are emptied. On the other hand, a want of blood and chilliness of the skin, cold extremities, sometimes cyanosis, dropsical swellings in some parts, and dropsy in the most distant cavities of the body, lessened urine, etc., if the right half is dilated. As a rule, palpitations and spasmodic cramps are present.

By auscultation, the beat is found to be muffled; by percussion, in case of dilatation on the right side, a displacement of the dulness to the right is shown; and by feeling, only a feeble, almost imperceptible, pulse is found, since the heart is no longer able to contract normally.

The treatment for dilatation of the heart must aim at the principal cause of suffering. When it is certain that a

* At this point the following description of the physiology of the heart may be useful. The heart, which resembles a suction and pressure pump, throws out at each contraction (systole) about two and-a-half to three ounces of blood into the blood vessels, with great force, and at the dilatation (diastole) admits the same quantity, and carries this on unceasingly until death.

dilatation has ensued, though the cause is uncertain, it is advisable to carry out the General Strengthening Treatment: ablutions in water, 77° to 81° F.; tepid baths, remaining in the water from five to ten minutes; massage of the body twice or three times a week; air baths, retaining the clothes. These are all important.

The diet should be digestible, low, and simple, principally vegetarian. Wine, beer, coffee, tea, and all other stimulants, must be strictly avoided. In cases of palpitation and oppression, apply at bedtime soothing compresses, 71° to 81° F., on the cardiac region, which can be judiciously renewed every half-hour.

Heart, Dropsy of the, is like all other dropsy, a result of another illness. Obstructions in the circulation, and a defective mixture of the juices, which may accompany dropsy in other portions of the body, are the forerunners of cardiac dropsy. Disorders of the heart itself, the pleura, the lungs, Bright's disease of the kidneys, tuberculosis, cancer, ague, may all be the origin of cardiac dropsy. The amount of fluid in the pericardium varies. Its appearance is either bright, clear, yellowish, yellow greenish, red or brown. The symptoms are heavy breathing, great breathlessness, which prevents the patient from remaining recumbent, and forces him to sit up. Pressure and tension in the cardiac region sometimes develop into terrible spasms. Obstructions in the circulation, general cyanosis, dropsical swellings in other parts, lessened secretion of urine, make up the complications of this disease. No treatment can be of any use that does not touch the main spring; it is the same as for "Water in the Chest (Hydro-Thorax)."

Heart, Fatty Degeneration of the; Fatty Heart.—

The normal heart possesses on its front outer edge, at its point in the vicinity of the junction of the chief blood-vessels, as well as situated in its furrows, little fat compartments. Should an increase of fat on the outside layer, which in many cases amounts, to the thickness of one's little finger, take place, this is called fatty degeneration of the heart, and should a superabundance of fat bar the way to the interior, the pathological transformation is termed marbling of the heart muscles. Should, in addition, a fatty degeneration of the finest tissues of the muscles (original muscle tissues) take place, the entire heart is, so to speak, a lump of fat, and the name applied to such a condition is fatty heart.

Its causes are numerous. First and foremost is a general natural inclination to embonpoint, this in consequence of the poverty of oxygen in the blood and its constituents, causing the organ to degenerate. Many things favour heart-fattening, such as habitual beer-drinking in cases of predisposition, or the weakening influences of loss of blood and vitality.

The symptoms, when distinguishable from those of the original trouble, are generally as follows: Difficulties of breathing (short-windedness, want of breath, which in many cases bear the character of asthmatical attacks); short, weak, irregular and languid, or feeble irregular pulse, slight, scarcely perceptible, beating of the heart; indistinct and faint heart-sounds, with a distant ring; frequent palpitation, tension and pressure in the region of the heart, faintings, etc., which indicate the clinical picture of apoplexy, paralysis, etc. The treatment must be directed to the fundamental trouble, and in most cases should be similar to that prescribed for "Obesity." (See same.)

Heart, Hypertrophy of the; Thickening of the Heart.—If the walls of the heart thicken in consequence of an increase of muscular tissue, it is called "Hypertrophy." If it extends to the entire muscular structure, it is called "Total Hypertrophy;" if only single portions are thickened "Partial Hypertrophy." The cause is found in a continuous and abnormally increased heart's action, which again is caused by a luxurious and over-rich diet, by excessive bodily exertion, and continual mental excitement, or as a complication with other disorders (exophthalmia, anæmia, pallor, hysteria, hypochondriasis, etc.), after poisoning of any sort, but more especially by obstructed circulation. As factors in obstructing the circulation may be mentioned valvular heart disease, contraction or dilatation of the aortic orifice, kidney diseases. In pregnancy it sometimes appears temporarily, a condition which ends with the birth. The subjective and physical symptoms generally appear in the following order: When a thickening of the tissue of the left ventricle occurs there are, should no heart disease be present, often no troubles worth mentioning, at most palpitations and difficulty in breathing after severe exertion. In more severe hypertrophy, the symptoms mentioned are greatly increased, and these may appear even if body and mind have perfect rest. They are accompanied by pressure and tension in the cardiac region, spasms, rush of blood to the head, stupefaction, dizziness,

headache, blackness under the eyes, specks apparently flashing before the eyes, buzzing in the ears, a full, quick, forced pulse. The pulsations in the swollen arteries of the neck are plainly visible. The patient generally lies on the right side, as the above-mentioned troubles increase on the left side. By auscultation, you find the cardiac sounds, especially the second aortic, increased. Percussion shows an increase of the cardiac dulness downward to the left. Examination shows a perceptible prominence of the cardiac region. The pulsation, which under normal conditions occurs. The heart impulse, in the normal heart at its apex, perceptible in the fifth intercostal space (between the ribs) slightly on the inner side of the breast nipple, is now apparent between the sixth and seventh, in some cases between the seventh and eighth, rib.

The heart impulse is frequently of such intensity, that it is apparent outside the clothing, or if the patient is in bed, it may cause vibration of the whole bedstead. Where we can cover the pulsation of the heart with the finger tips, it would take three or four in the case of an hypertrophied heart (the left auricle being affected). If the right auricle is hypertrophied (in consequence of the minor circulation being affected), the lungs become involved, and all the symptoms of an inflammatory lung affection are present, difficulty in breathing, tracheal catarrh, lung hemorrhage, œdema, cyanosis, etc. A strengthened pulmonary sound is produced, and percussion shows an increased area of dulness to the right. We can also see an increased heart-beat to the right side. In hypertrophy of all the muscles of the heart we find nearly all the above symptoms. As a rule, the patient presents all the characteristics of dropsy (brain, thoracic, or abdominal), and only death brings release.

The treatment is the same as for faulty action of the heart. Applications in any form of either cold water (under 68° F.) or steam (with the exception of hot bottles), must be strictly avoided, as they might occasion instant death. For palpitation, the best thing is to lie in bed, and apply compresses at 77° F. to the heart. Medium full baths, and washing the entire body every morning in tepid water, are also chiefly to be recommended. The patient must be assisted by someone else. Rubbing the skin until it becomes red must never be done after the application of water, but instead rub down gently with a dry cloth; enemas at 72° to 77° F., stimulant packs to the body and calves, must be very cautiously applied.

Heart, Inflammation of the muscles of the.—

Inflammation of the cardiac muscles is a comparatively rare disease. It occurs generally as a secondary disease, also as acute, or as chronic, more frequently, however, the latter. As causes may be mentioned inflammation of the adjacent organs, which has spread to the cardiac muscles, infectious diseases (intermittent fever, etc.), constitutional troubles (syphilis), diseases of assimilation (gout, diabetes), old age, etc. The symptoms are very many in number, and are apparent in other heart diseases, so that a certain diagnosis is not possible, for neither the subjective nor the functional and material symptoms ever assume a typical character which could be taken as a guide to throw light upon the subject. Very often the symptoms of a pronounced heart complaint are hidden by those of the primary complaint. In other cases the patient suffers from palpitations, oppression, pain, and painful pressure and tension in the cardiac region, from an increasing weakness of the heart, shortness of breath, etc.

Since inflammation of the cardiac muscles is never an independent disease, the treatment must invariably be applied to the chief complaint. In doubtful cases use the General Strengthening Treatment, in which mental and physical repose, out-door life, mild, low diet, tepid ablutions nightly, stimulating packs applied to the body and the calf of the leg, massage of the body; also as alleviatives, soothing compresses on the heart, and enemata (73° to 77° F.), to be followed by small cold ones (64° to 68° F.), are all of very great importance.

Heart, Inflammation of the Lining Membrane of the.—This very seldom exists as an independent sickness. It is far more serious and more often fatal than inflammation of the pericardium, as it can very rarely be cured, but in most cases affects the beating. Recent investigations show a distinction between acute, sub-acute and chronic forms.

Acute inflammation is generally the result of a septic wound, or infectious disease. It appears in the guise of blood poisoning, when the walls of the heart are subject to abscesses, and to the destruction of the inflamed tissue. This illness assumes either a typhoid or intermittent character. (See under headings "Typhus" and "Ague.")

The treatment is that given for Fever in II. Part VI.

Inflammation, sub-acute, of the lining membrane of the heart, which is accompanied by a warty condition of the membrane, is also a co-symptom in other diseases. These may be bruises, wounds, burns (especially if they extend over any large surface of the body), acute rheumatism of the joints, chronic inflammatory affections of the joints, feverish rashes (measles, scarlatina, smallpox), typhoid, chronic muscular rheumatism, syphilis, gonorrhœa, etc. The usual symptoms are as follows: Difficulty in breathing, palpitations, pressure and tension in the region of the heart, quick, irregular pulse, feverishness, etc. If the elevations on the membrane are small in size and insignificant in number, the pulsation of the heart will be very little disturbed; if they are many and large, an unhealthy condition will be set up. One characteristic will be observed by auscultation: if the right chamber specially is covered, when the pulsation occurs there is a strong beat of the pulmonary artery; if other pulsations be drawn into sympathy, they will necessarily be overgrown in a similar way. The chance of perfect recovery, as I have already said, is slight. The treatment must be of a preventive nature, and must be found in treating the primary causes in a rational way, to prevent any resultant disorder of the heart from setting up.

The treatment of sub-acute inflammation of the cardiac membrane is the same as for inflammation of the pericardium.

Chronic inflammation of the inner membrane generally arises from a wrongly-treated or neglected acute inflammation. Yet, continuous physical over-exertion, or toil, or advanced age, may bring it on. It results in a shrivelling up of the inflamed tissue, and of the three-pointed (tricuspid) valves, of the orifices of the auricles and ventricles, the muscles and sinews, and the end of the story is generally total collapse. (See further for symptoms and treatment, "Heart, Valvular Disease of the; Normal Heart.")

Heart, Inflammation of the Pericardium.—This may appear either as a primary or secondary disorder, but it is usually the latter. As a rule it is a result of acute rheumatism; but it also appears in diseases of the heart itself, of the adjacent organs, in constitutional and infectious disorders.

There may be either a moist or dry inflammation; this may again be either bleeding or festering. The pathological

changes indicated by these different inflammatory affections are similar to those in pleurisy, either in a dry, moist or suppurative form, and I therefore refer to my remarks under that heading to avoid recapitulation. We notice the absorption of the waste products, the outburst of the suppuration, whether in — or outwardly, as well as of possible growths, hardenings, thickenings, etc., in the various forms of inflammation of the pericardium are the same as in pleurisy. They are of many kinds, and want of space prevents me describing them minutely, and they are of more interest to the student of pathology than to the general reader. The idea regarding inflammation of the pericardium is generally vague, as the symptoms of the dominant trouble fill the foreground. It is thus a doctor's duty, in cases of acute rheumatism, to make a thorough examination of the patient's heart, to ascertain whether and to what degree it is affected.

Should the inflammation of the pericardium be complicated with pleurisy, pain is generally experienced around the heart, extending to the left arm, the back, and the epigastrium; but in a simple case, the pains are generally of no great degree, and their presence is only perceived by pressure. Further, subjective and functional symptoms (p. 186) may be mentioned, such as quickened respiration, which causes breathlessness, palpitations, feelings of fearful anxiety, blueish or pale skin, especially in the face, difficulty in swallowing, vomiting, and in bad cases fainting, convulsions, delirium, etc.

There is generally some feverishness, but it may be entirely absent. The pulse is generally accelerated, sometimes also irregular. As regards tangible symptoms, auscultation reveals an indescribable and very characteristic rasping sound,* which, at the commencement of the inflammation, is only perceived at the base of the pericardium, but, at a later stage, all round that region. The sound, which is of a grating and scratching kind, is occasioned by the friction of the raw and inflamed portions of the walls of the pericardium. If the discharge in a bleeding or suppurating inflammation is very great, this sound will not be audible, as the affected

*As we have already seen elsewhere, under "Pleurisy," the characteristic pleuritic grating exists in consequence of a thickening of the pleura and of a discharge from the same. In pleurisy, the sound occurs at the moment of breathing; in inflammation of the pericardium, it corresponds with the heart-beat, and this difference serves to distinguish between the two complaints.

parts are divided by the matter. In such a case, therefore, it is a favourable symptom, indicating that the fluid has been absorbed and the suppuration has ceased, when the sound is once more audible. The sound of the heart-beat is generally drowned by this, but occasionally the two can be heard at the same time.

Heart, Nervous Pains in the. — Nervous pains in the heart indicate disease of the nerves (neurosis), and manifest themselves more or less by pains in the region of the heart, shooting outward in all directions. The cause of this trouble, which seems to be brought on sympathetically by the branches of the pneumogastric nerve, may originate in excitement, poisoning by alcohol, nicotine, syphilis, gout, hypochondria, hysteria, colds, etc. The pain itself, which may appear without any referable cause, or in consequence of intermittent moments of excitement, great bodily exertion, excesses of all kinds, etc., is sharp and piercing, extending to the right shoulder, to the left side, and sometimes to the left fore-arm. The accompanying affections are increased activity of the heart, difficulties of swallowing and breathing, convulsions, hiccoughing, fainting, unconsciousness, etc. The duration of a single attack is as fluctuating as the frequency of its appearance. The disease or its recurrence may last from so many minutes to so many hours, or it may even amount to so many weeks, months, or years. The treatment must be directed to the fundamental trouble. The palliatives consist in applying wet compresses around the region of the heart, changing them every five to ten minutes; in the application to the hands and feet of hot water bottles encased in damp cloths, or in the interchange of a hot hand and foot bath.

Heart, Nervous Palpitations of the. — By nervous palpitaton is understood attacks of increased cardiac activity, which occur suddenly, without any actual reason, or in consequence of emotional causes, which would have no effect on the heart of comparatively sound persons who also possess comparatively strong nervous systems. If it is sheer nervousness, this complaint does not arise from any organic disease of heart or nerves. The hurried, and often more forcible pulsations are undoubtedly caused by a nervous condition of the heart, either the surrounding nerves, the vagus or pneumogastric nerve, which stops the heart's action, or of the sympathetic nerves. The causes, which work so injuriously upon the heart, may be general nervous debility, anæmia, chlorosis,

sexual excesses, dietetic errors, such as the use of strong coffee, tea, tobacco, moreover emotional outbursts (fear, fright, shame, timidity, etc.), also hypochondriasis, hysteria, abdominal pains, hemorrhoids, worms, and habitual constipation, female diseases, etc. The attack itself is as follows: The patient labours under a great sense of anxiety, as well as a queer sensation in the cardiac region. Next a feeling prevails as if the heart had stopped, until all at once it begins to beat quickly and audibly. Cold hands and feet, difficult respiration, chilliness, and paleness of the skin, especially in the face, slight fainting fits, are all present as a rule. In many cases shivering, buzzing in the ears, specks before the eyes, blackness under the eyes, feeling of compression in the head, and other troublesome symptoms follow.

The treatment must aim at preventing a recurrence of the attacks, and diminishing the intensity of their effect on the main cause. The General Strengthening Treatment will be found of great service for this purpose. Be temperate, do not indulge in over-eating, nor in over-working, and avoid excess of any kind. Alleviating measures in isolated attack are as follow: Release the patient from any tight clothing, lay the body in a horizontal position, raising the head on a sofa or bed in an airy room, wash the legs or the entire body in water (68° to 73° F.), bathe the hands in cold water (p. 541), apply soothing compresses, 73° to 77° F., every ten or fifteen minutes, on the heart. In constipation administer enemas. Should these simple measures fail, give the patient hand and foot baths alternately (p. 541), or give him a foot-sole bath (p. 540), and apply irritant stimulant bandages to his abdomen, and stimulating leg and calf packs.

Heart, Percussion (Knocking) of the, causes, in proportion to the amount of fluid and the space it occupies, a more or less dull sound. If the patient sits up, this is, as a rule, greater than if he is recumbent. This peculiar fact is a guide in distinguishing between this and other cardiac diseases.

In palpitation the following symptoms appear: At the commencement of the inflammation no special change as regards force of the heart-beats, at a further stage a humid inflammation diminishes the force, until at last it is imperceptible, but in laying the hand over it, a sort of rasping is felt, as described. Examination shows, in pronounced cases, a distension on the left side of the chest, the region

of the heart being more prominent. The skin is consequently drawn and glassy. The action of the heart, in many cases, resembles long-drawn-out vibrations, in others, again, they are not visible. Patients generally lie on their backs, as other positions occasion great difficulty in breathing. The duration of the inflammation depends upon the primary disorder. Acute inflammation lasts for three or four weeks. If the complications do not lead to fatal results, inflammation of the pericardium itself, in the majority of cases, ends (in the re-establishment of health) favourably.

The treatment should be directed to the primary disease. The patient keeps his bed, and takes a nutritive, mild diet. Apply stimulating bandages, 77° F., to the abdomen, 73° to 77° F. to the calves, 73° to 77° F. to the wrists and forearms; on the region of the heart soothing compresses, 73° to 77° F., renewing them every hour. Also, once or twice a day, a sponging at 77° to 81° F. To prevent or relieve possible constipation, give an enema 77° F., followed by small cold ones at 64° to 68° F. Further, follow the instructions for "Sick Nursing" (Part. I., Chap. 38). During convalescence use the General Strengthening Treatment.

Heart, Rupture of the Heart; Rending; Rupture of the Heart Muscles.—Rupture of the heart can never happen in a normal, but only in an affected, condition, i.e., when the muscles have lost their elasticity. A fatty heart forms a prominent and fruitful source of rupture; as also predisposition, over-exertion of the body, excitement, disease of the artery which leads into the aorta; and furnishes the heart with blood, etc. This disease attacks those possessing apparently strong vitality and enjoying good health. The patient either falls down dead all of a sudden, or is found dead one morning in bed. In other cases he feels a violent pain in the region of the heart, suffers unspeakable anguish, and complains that something has been ruptured in his heart. The face is pale and pinched, the surface of the whole body is white and cold and covered with clammy sweat, the pulse low and feeble. Death generally takes place in a few hours after attacks of fainting, unconsciousness and cramp.

Treatment for recovery is in this case of no avail, for there is no human remedy for inevitable death. The only thing to be done is to try to render the end as painless as possible. The patient should be laid on his back in a horizontal position, and kept perfectly free from all mental

or bodily irritation, and compresses at 77° F., which should be renewed at from ten to twenty minutes, applied to the heart. Besides, arm, leg, or calf packings at 81° F. may be used, the hands and feet put to warm bottles encased in damp cloths, and the legs and arms rolled up in hot flannel. A small, cold enema at 68° F. should be given frequently to him, and care must be taken to retain the horizontal position throughout. The remarks on "Sick Nursing" (Part. I., Chap. 38), should also be here attended to.

Heart, Stitch or Spasm of the. (See "Rheumatism.")

Heart, Valvular Disease of the; Abnormal Heart.—In describing the heart (p. 1093), I have already referred to the valves, especially the tricuspid valve, between the right ventricle and the right auricle; the bicuspid valve, between the left ventricle and the left auricle; the aortic valve (semi-lunar), between the left ventricle and the aorta, as well as that of the pulmonary artery, between the right ventricle and the pulmonary artery. Upon the perfect action of each valve an unimpeded, normal circulation depends. Any abnormality in the valves, therefore, causes an interruption of their action, and an injurious reaction on the circulation and distribution of the blood. Should the valve no longer be able to close an orifice, so that the blood is not prevented from flowing back, the condition is termed inefficiency of the valves. If, on the other hand, the valvular orifice has contracted so that only a small stream of blood can run through, it is called "contraction."

It is necessary, in order to make the following description of the physiological changes in the valves more clear, to interpolate a few observations made in auscultation of a healthy heart.

By auscultation, you plainly hear the opening and closing of the valves, as well as the oscillations of the cardiac muscles in the so-called heart-sounds. The (systole) sound heard at the contraction of the heart is caused by the valves between the auricles and ventricles, the sound audible on dilatation (diastole), by the valves between the aorta and left ventricle and pulmonary artery and right ventricle. The sound perceptible at the contraction of the heart (the systole) is termed the first, or systolic sound; that at the dilatation (the diastole), the secondary, or diastolic sound. In order to distinguish these sounds one from the other, we speak of the primary sound above the right or left ventricle; of the aortic or

pulmonary sound, corresponding with the ventricles and blood vessels where it is audible. When a valve has become ineffective through a defective closure, auscultation reveals, instead of the usual sound, a sound caused by a reflex of the blood (regurgitation), and similar to that made by respiration.

A contracted orifice will make itself apparent by a sound of a singing or whistling nature, which can sometimes be heard at some distance from the patient.

In most cases valvular affections precede inflammatory stages, e.g., chronic inflammation of the cardiac membrane. Excessive physical exertion may also contribute to a failure of the valves by tearing them. Most frequently it is the aortic valve that is injured.

Valvular diseases may occur in a single or in a greater number of valves in the same individual. Middle-aged persons are more liable to inflammatory affections in the bicuspid valves, older persons to those in the aortic valve. People who are obliged to continually over-exert themselves physically, are far more subject to heart disease than those who have more sedentary occupations. Whether heart disease is hereditary is yet undecided by the Faculty. At the same time, heart disease is often innate. It is quite beyond my province to describe the countless and special details that an experienced specialist in the functions of this or the other valve, or the contraction of this or that orifice, has at his finger ends. I merely wish to point out that each valve has its own peculiar characteristic, which distinguishes it from any other, and the knowledge of an expert in auscultation and percussion is requisite for its recognition. The novice must certainly not suppose that he can decide at once by auscultation as to the comparative gravity of the disease simply by the peculiar sounds perceptible. On the contrary, a faint sound is often more serious than a louder one, as the first indicates a condition of cardiac weakness, which is more or less dangerous. I must also refrain from dilating upon the local symptoms, which would show with certainty the nature of a heart disease; yet I would like to draw the attention of the reader to the description of some general symptoms which indicate the condition of valvular disease with some amount of certainty.

Heart disease may exist for years without being apparent to the patient. This condition will be explained by the

following pathological facts: The affected cavities are in consequence of the failure of the valvular action, or of the contraction of the orifices, continually filled with a greater quantity of blood than in their healthy state. A greater strain is thus put upon the cardiac muscle, which it strives to fight against by a gradual and continuous dilatation. Thus it is only by an increased action of the heart's muscles that the obstructions in the circulation, brought about by the failure of the valves, can be obviated. The organic change in the muscular action is termed "compensating." As the abnormal change in the muscular action either is not felt at all by the patient, or only temporarily at this stage, and does not, owing to its peculiar nature, admit of reaction, it very frequently occurs that heart disease may exist long before any chance brings it to light. But should this "compensating action" be imperfect, or altogether fail, or react, many physical troubles will ensue. One of the chief symptoms is difficulty in breathing, combined with palpitations, tension and oppression in the cardiac region, which appear generally after rapid movements of the body, after immoderate meals, or the use of stimulants, etc. The heart's action is, as a rule, increased; it is recognised by "objective" palpitations, which, however, do not reach a "subjective" perception in the patient. Digestive troubles set in, with catarrhal affections of the mucous membrane. The liver, gall bladder, spleen, urinary and sexual organs, are all drawn into sympathy by congestive troubles in various ways. The respiratory organs evince their irritation by bronchial catarrh, by gaspings, dropsical swellings in the lungs, and other symptoms. Bleeding at the nose is often observed. The blood vessels share in the pathological changes in the formation and carrying away of blood clots. These are taken into the adjacent organs (brain, lungs, spleen, kidneys etc.), obstruct them, and set up a great many symptoms. Should a thrombus (a small tumour) set up within the heart's cavities, serious troubles of the circulation ensue. The nervous system shows its sympathy in the state of mind, depression, hypochondriasis, a feeling of compression in the head, dizziness, headache, specks moving in front of the eyes, buzzing in the ears. The skin assumes a blue tint, or red with a blue tint over it, a condition that may be mistaken by an ignorant individual as indicative of excellent health, in blissful ignorance that the person of the supposed healthy man, whom he is admiring, is really a whitewashed grave.

Dropsy, with its host of co-symptoms, is very frequently the result of heart disease. Elephantiasis very frequently arises from valvular disease (compare that article). In a prolonged case of heart disease the general health suffers, nutrition becomes defective, and the patient relapses into a bad general condition. It is generally terminated by paralysis of the heart or dropsy in the chest.

The treatment of a sufferer from valvular heart disease necessitates close attention to the instructions in the General Strengthening Treatment. If the cure of a person suffering from this disease lies within the bounds of possibility, it can be obtained only by the application of natural means. Above all, the patient must guard against mental or physical exertion. He must walk on level roads. The famous "Terrain-cure," by Professor Oertel, of Munich, in which the cardiac muscles are strengthened by regular mountain climbing, have only succeeded in early stages; later on, the exercise is injurious rather than beneficial. The opinion of Professor Stricker, of Vienna, is that walking and every bodily exertion must be avoided by sufferers from heart disease.

Patients with fatty degeneration of the heart are excepted, as moderate exercise is required for their cure. As a rule, we say, fatty degeneration requires exercise, all other heart diseases rest. Dr. Schweninger thus expresses himself on similar treatment: "It is beyond any question that Oertel's treatment has a good foundation, and is suitable for Oertel's patients. The results are often convincing; but, on the other hand, the treatment is so drastic and difficult to carry out, that its propagation, and general (as apart from individual) application would do more harm than good. For the great majority of heart sufferers, who are not in a position to place themselves continually under a doctor's care, the system is exceedingly dangerous. At the present time the cure has a great reputation—it merits it only to a certain degree."

The diet should be low, non-stimulating and digestible. Avoid soups as a rule, and avoid stimulants of all sorts, including tea and coffee. Water applications must be limited to short ablutions in any kind of bath. The washing and drying, which should be very gentle, is best done by a second person. Possible constipation must be remedied by taking ripe fruit and wholemeal bread freely, and using enemas. The principal factor, however, is inhaling pure, fresh air; at any rate, this is of use in preserving the compensation

mentioned above. To preserve this long and continuously, is, in most cases of valvular heart disease, the only aim to be considered.

Heartburn. (See "Stomach, Acidity in the.")

Heat Bumps (Urticaria) is the name given to a rash consisting of small bladders, quite apart from one another, surrounded by red circles. It may result from profuse perspiration (heat bumps), or from feverish disorders, as typhus, puerperal, acute rheumatism, etc.

The treatment depends upon the cause, and, as a rule, a gentle bed vapour bath, No. 2 or 3, combined with a head-to-foot ablution afterwards, at 77° to 81° F., is advisable. During the vapour bath, a thick stimulant compress, 73° to 77° F., may be laid on the abdomen from the navel downwards. Have a bed vapour bath once a day. Independent ablutions, body baths and tepid baths, are effectual. Powdering the affected parts with rice powder is also helpful. Should high fever set in, follow the instructions for "Treatment of Fevers," in II. Part VI. (See also "Measles" for treatment.)

Heat Stroke. (See "Sunstroke.")

Heath Vapour Bath. (See Index.)

Heating of Rooms.—The individual who is not so fortunate as to live in a climate where one can breathe pure, undefiled air in the open the whole year through, and not be dependent on the stale, vitiated atmosphere of a room, must, for the benefit of his health (more especially the "stay-at-home") ensure a certain measure of warmth in his rooms during the winter, either by means of the ordinary grate, or an enclosed stove with a flue pipe (Fig. 377). A very even temperature is obtained by means of a central heating apparatus, such as we have in churches, theatres, and in some "flats." Hot water or hot air is utilized in this kind of apparatus, and diffused by means of pipes; but as this is a luxury which is not at present for the million, we must leave it out of the question in this article.

The open grate is found in nearly all the rooms of our English homes, but notwithstanding the pleasure of seeing a nice glowing fire on a very cold or damp day, you must have noticed how unevenly your room is warmed. You turn one side to the fire and nearly bake, whilst the other side of you is feeling very cold, and so on. That part of the room near the fire is too hot, whilst the other end of the room is hardly warm. As I have remarked, the central warming

system is far from being universal, and therefore I strongly recommend the "enclosed stove" (Fig. 377). They are made in a great variety of patterns and sizes, to suit individual requirements, and are very moderate in price. The advantages

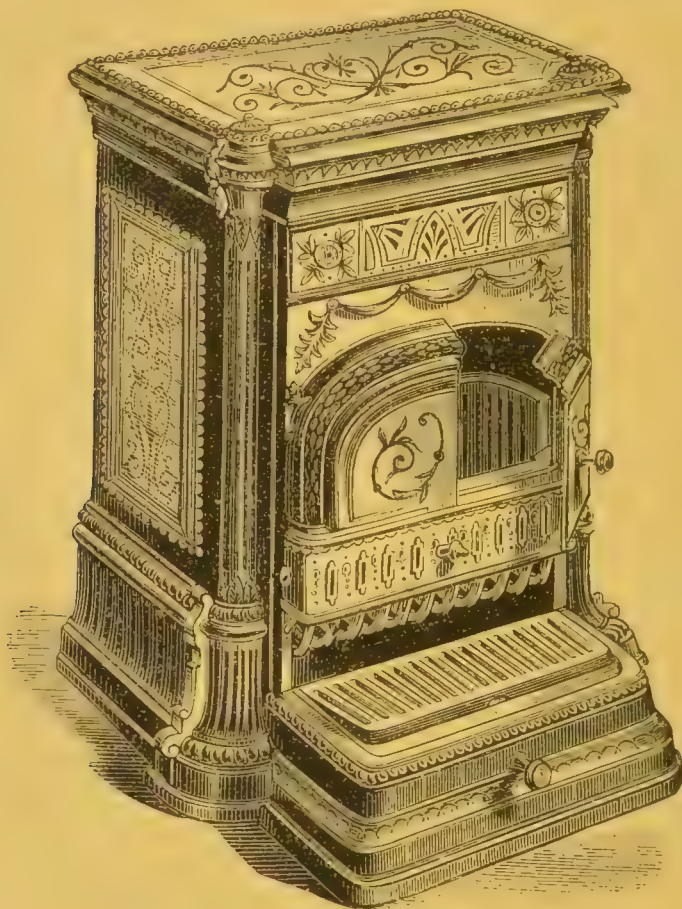


Fig. 377. Enclosed Stove.*

are quite obvious, for, in addition to warming the room evenly in every part, there is a considerable reduction in the cost of fuel as compared with the open grate. Another item is, that much less attention is required to keep the fire "going."

I must warn you emphatically against purchasing the small unlined stoves; they become red-hot very quickly, and

* Supplied in various designs by William Poore & Co., 139 Cheapside, London.

consume the carbonic acid of the room, converting the oxygen contained in it into carbonic oxide, the organic waste matter in the air and the red-hot coals affecting the carbonic acid of the atmosphere — carbon-monoxide gas is produced, which is extremely injurious to health. To obviate all this, the stove must be lined with fire-brick (nearly all those now sold are so lined), and be fitted with a register-valve for regulating the heat and the consumption of fuel. Great care must be exercised not to have the room at too high a temperature. When the room has been at a temperature of 66° F. for some time, you will find that 72°, or even 77° F., will not suffice to keep you warm. The explanation lies in this: A continued high temperature absorbs the moisture from the walls, then from the furniture, etc., in the room; having exhausted this source, the moisture of the individual is attacked. The exhalation by the skin and lungs is increased, and this withdraws heat from the body. It is perfectly clear now, that as the temperature of the air in a room is raised, the individual still requires more heat. Do not over-heat your rooms in winter if you wish to retain health; the supply of oxygen (that most vital element) to the lungs is retarded, and the consequence is a hindrance to the conversion of our food into nutrition for the body. It may sound very strange, but the heating of our rooms must be looked upon as a necessary evil, which our climate and habits forces upon us, and it therefore behoves us to carry out the warming of our homes with as little injurious effect on our health as possible.

Hæmoptysis. (See "Blood, the Spitting of.")

Hæmorrhages, Abnormal, from the Female Sexual Organs. (See "Women, Diseases of.")

Hæmorrhages, Abnormal, connected with Labour. (See "Lying-in.")

Hæmorrhoidal Vein. (See "Hemorrhoids" ([piles]).

Hæmorrhage, Violent Bleeding. (See "Hæmoptysis, Blood, the Spitting of.")

Hemorrhoids. — By hemorrhoids we understand a flow of blood owing to an extension of the veins of the rectum and of the groin. Under certain conditions it becomes a stoppage of the circulation in the veins of the rectum. These are filled with blood, and their expansion being prevented, bag-like extensions of the blood vessels are set up, whose place is neither in the rectum or groin. What is popularly

understood as a "displaced" hemorrhoid, causing general indisposition, is founded on an apparent error. The causes of hemorrhoids (the expansion of the veins of the rectum) are, as a rule, as follows: Sedentary life, incidental growths in the rectum (constipation, costiveness), chronic catarrhal affections of the large intestines, weakness of the womb and ovary, inflammation of the passages and liver, further obstructions in the circulation brought about by weakness of heart or lungs, in fact, any mechanical obstruction which prevents the flow of blood from the rectum. Hemorrhoids are frequently hereditary, and any provoking circumstance will bring them on. There is a difference between internal and external piles. The former are situated higher, the latter in the external opening near the sphincter muscle. Often both occur together. The hemorrhoids, of which the shape, number, and size vary considerably, may, if of long-standing, adhere to one another and inflame. In an unfavourable course of this inflammation, abscesses, festers, even mortification, may set in. In many cases the veins of the bladder, as well as those of the rectum, are enlarged. This pathological change is termed hemorrhoids of the bladder. Although this is a chronic disease, the symptoms have something of an intermittent character. The swellings attain their full size when the obstruction in the circulation is greatest. Inflammation and itching, and even violent pains in the back, are felt. Should the external passage (as sometimes happens) be contracted through pressure of the blood, stool troubles set up, which occasion intense pain. And, further, if this pain in its turn causes constipation, owing to the sufferer himself, violent blood pressure to the chest and head, breathlessness, sickness, dizziness, etc., will ensue, and from these again chronic catarrh of the rectum may be brought about. In consequence of this a disease is set up called mucous piles. When this occurs, matter is discharged in larger or smaller quantities; in contradistinction to the above, the discharge of blood from the lower vessels of the rectum, longer or shorter intervals — bleeding piles. The bleedings occur sometimes alone, sometimes mixed with the fæces, and come either from the rectum itself, which permits it to trickle through, or from the bursting of the piles. Very generally the sufferer is relieved by the bleeding, and this has given rise to the name "golden piles." These periodic bleedings were supposed to be an unavoidable symptom.

Plate XVI.

Curative Plants.*

Fig. 1. Wild strawberry. (*Fragaria vesca*.)

An infusion of the leaves is given internally for diarrhœa, gout, jaundice, etc. The physiological action is astringent and blood cleansing. The chemical constituents are a considerable quantity of soda salts and silicic acid. The taste is slightly herbaceous.

Fig. 2. Mountain ash. (*Sorbus aucuparia*.)

The fresh fruit, in the form of a syrup, are given as a diuretic (to augment the flow of urine from the kidneys). In the dried state, the fruit is given for diarrhœa and diseases of the urinary organs.

Fig. 3. The dyer's broom, or greenweed. (*Genista tinctoria*.)

An infusion is given for loss of flesh, and Bright's disease of the kidneys. The physiological effect is diuretic, aperient and sedative. Chemical constituents are an acrid extract, sparlein (narcotic), scoparin (diuretic). The taste is bitter.

Fig. 4. Honey lotus. (*Melilotus officinalis*.)

The herb and flowers are made into poultices for rheumatic swellings, glandular enlargements, milk swellings, and the early stages of induration, etc. The physiological action is emollient (softening). Chemical constituents: Ethereal oil, bitter extract, gum, and benzoic acid. The taste is bitter, the odour strong.

Fig. 5. Walnut tree. (*Juglans regia*.)

The infusion of the leaves and green shell of the ripe walnut is given, internally, for disordered mucous membrane of the stomach and intestines, chronic skin disease, gout, struma or scrofula, syphilis, mercurialisation, etc.; externally, applied to inflamed scrofulous, syphilitic, scorbutic swellings, and scrofulous inflammation of the eye. It is also used as an injection. The physiological action is to promote digestion, strengthening, and tonic. The chemical constituents are tannin, oil, salts, calcium, manganese, a substance giving a deep dye and aromatic smell.

* See articles on "Boiling Down (liquid extract)", "Herbs, Curative", and "Glünicke's Curative System" in Platen's "New Curative Treatment".

Fig. 6. White birch. (*Betula alba*).

An infusion or liquid extract of the leaves is administered for rheumatism, gout, dropsy, and diseases of the urinary organs, externally for diseases of the skin. The bark is given in the form of infusion or liquid extract, internally, for chronic skin disease. Physiological action, blood cleansing and diuretic. The leaves contain tannin, bitter extract, gum, and albumen. The bark contains about 70 per cent. of potash salts; the taste is bitter. The juice of the ash, which has a pleasant bitter-sweet taste, is a valuable remedy for pains caused by stone, or in the kidneys, and colic. It forms a very refreshing blood cleansing drink. By boiling down the juice becomes syrupy. The juice should be obtained in the spring, say March, before the trees bud. The tree should have a hole bored, by means of a thin gimlet, $1\frac{1}{2}$ — $2\frac{1}{2}$ inches deep, into which a quill is inserted to let the juice into a receptacle. This should be done at noon, on a sunny day. Too much juice must not be extracted, for fear of permanently injuring the tree. After withdrawing the quill, the hole should be plugged with a small cork and sealed with rosin.

Fig. 7. The goat willow or great round-leaved willow. (*Salix caprea*.)

The bark, as a liquid extract, is used for mucous catarrh, whooping cough, acute and chronic rheumatism, dyspepsia, &c. internally; externally, as a specific for causing the growth of the hair, as an injection, and as a germicide, in bandaging, etc. Chemical constituents: Salicin, tannin, salts of potash and soda. The taste is herbaceous and astringent.

Fig. 8. The periwinkle. (*Vinca minor*.)

The liquid extract of the herb is used internally for diarrhoea, mucous discharge from the air passages or intestines, hæmorrhage; externally, as a gargle and mouth wash for spongy gums. Physiological action: Strengthening, blood cleansing and aperient. Chemical constituents: A very bitter extract and tannin. Taste is bitter and astringent.

Fig. 9. Taller, or common ash. (*Fraxinus excelsior*.)

The fresh bark is used externally to recent cuts. Providing no blood vessel has been injured, cleanse the wound with water, take the bark from a branch, neither too young nor too old, bring the edges of the cut together, and bind the under moist side of the bark on the wound with a linen bandage, changing the bark two or three times daily.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

Piles are common to both sexes. The treatment must aim at obviating the original cause, as well as the relief of the present sufferings. Hip baths are specially helpful in lessening the pain, vapour baths, wet compresses laid on the anus, warm and also hot baths. External piles are thus easily replaced.

Increased and continuous bleeding, which threatens to exhaust the patient, require the application of an enema, 64° to 68° F., at intervals of a half or quarter-of-an-hour. Festering or mortifying piles should be treated according to the instructions given under the heading "Abscesses" or "Mortification." The diet should be light, soothing, and principally vegetarian. Tea, coffee, wine and beer should be strictly avoided.

To obviate the main cause, it is advisable to follow the instruction for the General Strengthening Treatment. The use of two or three hip baths daily, 84° to 86° F., the use of enemas, 88° to 90° F., nightly stimulating bandages on the body or calf of the leg, are of special benefit. Weekly, one or two vapour baths every day, or every other day; massage of the abdomen, followed by exercise (Fig. 199 to 204); weekly, once or twice, entire massage, will very much tend to the alleviation of chronic piles. Should massage and the gymnastic exercise be difficult for want of a suitable person, it is advisable to massage the body oneself on awakening, and follow the instructions for Exercise given as No. 4 of the Simple Active Exercises of Curative Gymnastics. It needs no special proof to maintain that a simple digestible diet, exercise of the powers in the open air, avoidance of excesses of every kind, must contribute to improvement in health.

To prevent any wounding of the piles by friction, soak pads of pure chemical wadding in water (72° F.), and push them as far in as possible once or twice a day.

Herbs, Curative and Medicinal. — In ancient medicine, herbs played an important part. The ideas which the public entertained, and still entertain, are as various and widespread as they are vague and erroneous. So it was quite a natural consequence that the believers in hydropathy (a system introduced among the most remote nationalities, and which is really a popular system) not only considered the application of decoctions from innocuous plants, internally and externally, whenever and wherever a chance presented itself, as a mistake, but offered active opposition to it.

Father Kneipp was the first of the practical hydropathists to undertake the defence of the herbal system. At first he was fiercely attacked by fanatical believers in hydropathy. At last he and his opponents came to an understanding — eagerly seized by the latter — not so much for the sake of any change in their views and their increasing conviction of the usefulness and efficacy of herbal remedies, as to avoid a conflict, which could but injure their joint cause. But it was reserved for a lawyer, and Dr. Glünicke, of Berlin, to reduce the herbal method to a scientific and orderly system. With the appearance of Glünicke's System herbal medicine has entered upon a new phase. Water applications and herbal remedies, prescribed together in connection with other natural remedies, will in future represent this branch of nature's curative agencies. For "God made herbs to grow in the earth, and a wise man despises them not." In wood, field, and pasture, and in our gardens, grow a great number of plants, containing strengthening and soothing saps, whose beneficial effects are of great value in the various forms of sickness and disease.

When spring comes, a herbal diet is highly welcome, for the animal body feels the benefit of the fresh-grown vegetation. The young plant is then more juicy, balsamic, sweeter, and specially rich in vegetable salts, which supply the body with mineral substances necessary to its building up and preservation. In the summer, on the other hand, many plants contain more balsamic resin.

Fresh plants, used in medicine, are, as a rule, merely pressed at this time, through linen, to cleanse them from all coarse and indigestible elements. In that case they are used fresh. In straining the liquor that has been extracted, the sediment will be found to contain not only worthless fragments, such as tiny twigs, leaves, etc., but good, useful substances, such as resin and vegetable salts. The majority of these extracts do not taste very nice, yet they must not be taken with milk, wine, or broth, by way of concealing the flavour, as they would interfere with the action of the herb. Nor must too many varieties enter into a mixture, or too much be taken at a time, even though there is an illogical proverb, "Much helps much." Except the cucumber, grape, or melon-treatment, it is best to commence a herbal cure at the time that fruit trees are in their prime. A herbal treatment necessitates a strict diet. Early rising is imperative,

Plate XVII.

Curative Plants.*

Fig. 1. Liverwort. (*Hepatica nobilis*.)

The infusion of the herb is given internally for gleet, blood spitting etc. Physiological action: Astringent, diuretic, without acidity. Taste is bitter.

Fig. 2. Fumitory, or Hen's-feet. (*Fumaria officinalis*.)

Infusion of the herb given internally is a diaphoretic (to promote perspiration), blood cleanser and stomach-tonic, to promote fermentation and the secretions in chronic and atonic complaints of the abdominal organs; for constipation, bad circulation in the blood vessels of the liver, more particularly for jaundice, hypochondriasis, hysteria, piles; also dropsy, eruptions of the skin, gleet, etc. Chemical constituents: Bitter extract, yellow colouring matter. Taste bitter, mucilaginous, somewhat salty.

Fig. 3. Scurvy grass. (*Cochlearia officinalis*.)

The infusion of the herb is given internally for rheumatics, dropsy, scurvy, gonorrhœa and leucorrhœa. Physiological action is blood cleansing, astringent, and diuretic. Chemical constituents: Sulphurous oil, albumen, and alkaline salts. The smell is very strong and pungent and the taste acid-bitter.

Fig. 4. Shepherd's purse or cassweed. (*Capsella bursa pastoris*.)

Infusion of the weed is given internally for rheumatism, kidney disease, blood spitting, and excessive menstrual flow; externally for bleeding from the nose, etc. Physiological action is astringent, blood cleansing, and diuretic. Chemical constituents: Acrid extract, salts of potash, soda and calcium. The taste and smell is like that of garlic.

Fig. 5. Soapwort. (*Saponaria officinalis*.)

Infusion or liquid extract of the weed is given internally for catarrh of long standing; the same preparations of the root are given internally for glandular swellings, gout, syphilis, and skin diseases. Physiological action: stimulant, demulcent, and tissue-forming. Chemical constituents: Gum, mucus, soft resin, juice-sediment, and a soapy substance (saponin). The taste is sweet and syrupy, afterwards pungently bitter; the smell quite pleasant.

* See articles on "Boiling Down (liquid extract)", "Herbs, Curative", and "Glüncke's Curative System".

Fig. 6. Small-leaved lime tree. (*Tilia parvifolia*.)

Infusion of the flower heads is administered internally for cough, catarrh, weak stomach, fainting-fits; externally for injections, lotions, and gargle. The physiological effect is diaphoretic (to promote sweating); it is a stomach tonic, blood cleanser, nervine tonic, and restorative in fainting fits. Chemical constituents: Gum-resin, sugar, gum, and a weak ethereal oil. Taste is herbaceous, smell aromatic.

Fig. 7. St. John's wort. (*Hypericum perforatum*.)

Infusion of the herb flowers is given internally for liver complaints, spasms, phlegm, incontinence of urine, etc.; and externally, applied to heal wounds. Physiological effect: Astringent, nerve tonic. Chemical constituents: Bitter extract, tannin, and red gum-resin. The taste is bitter herbaceous, smell resinous.

Fig. 8. Stinging-nettle. (*Urtica urens*.)

Infusion of the leaves given internally for chest diseases, intermittent fever, hemorrhage (bleeding), piles, excessive menstruation, etc. Physiological effect: Blood cleansing, diuretic. Chemical constituents: Acrid extract, tannin.

Fig. 9. Blackberry. (*Rubus fruticosus*.)

Infusion of the leaves and flowers given internally for diarrhœa, bleeding, and skin diseases; externally used as a gargle. Physiological action: Slightly astringent, blood cleansing.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

and breakfast follows the taking of a herbal draught only after an interval of two or three hours. After swallowing the medicine it is best to take outdoor exercise. As a rule, about three to four ounces of the juices are prescribed daily. The herbs should be gathered fresh every two days. The following plants form an important list: Dandelion, clover, thistles, camomile, celery, yarrow, rue, coltsfoot, eryngo, ground-ivy, tansy, parsley, chevril, watercress, bankcress, radish, garlic, pansy, etc. Dandelion may be eaten raw, twenty or thirty stalks daily. Watercress, pepperwort, sorrel, dandelion, etc., may be used as a salad. Cucumbers should be cut into thin slices, sprinkled with salt, and pressed through linen.

If an extract of herbs is required, according to a prescription of Father Kneipp's, "Choose the best, ripest, and most perfect plants, dry them on a clean board in the open air, in the shade, not in the sun, cut them up when dried, and put them into a wine bottle with some pure brandy." "I have," said he, "such bottles filled more than a year ago, and have left them to settle, and have then poured them out with brandy as medicine. In pressing cases, the extract can be used in the course of a few days. Tinctures must be taken so many drops at a time." Dried herbs may also be boiled and strained. (See under "Boiling down.")

I am prevented from entering upon the uses of special herbs in special cases, and of the nature of their combinations, by the very limited space accorded to me in this work. But I cannot omit to bring to the reader's notice another of Father Kneipp's remarks on this subject:

"I only wish that every one valued the herbal gifts of nature more fully. In them lies so much healing power, that our ancestors owed their health — and its restoration when it failed — to them; no other remedies were known, and they needed none. As an antidote to death, no plant is known as yet, for we are all ordained to die, and to enjoy the fruits of our labour in eternity."

Hereditary Diseases, the Nature of. — The Bible says that the sins of the fathers are visited upon the children even unto the third and fourth generation, and we have only too much evidence of the truth of this well-known and melancholy utterance. Just as features of personal character, the intellectual capabilities, and so forth, are hereditarily transmitted to many generations, so also tuberculosis

(consumption), nervous diseases, brain diseases, chlorosis, hypochondria, hysteria, epilepsy, cancer, syphilis (which often is in the form of scrofula), gastric diseases, and so forth, find new victims generation after generation in the same families. These are among the diseases, a predisposition to which children bring into the world with them, and on this foundation the disease afterwards develops. Among the congenital diseases are specially numbered deformities which the child brings into the world with it, such as club-foot, cleft palate, the so-called "bleeding disease," etc.

Hernia, Inguinal. (See "Rupture, Hernia.")

Hernia, Intestinal. (See "Rupture.")

Herpes. (See "Ringworm.")

Herpes Furfuraceous, or Bran Eruption, is the name given to a skin disease, in which the skin, by reason of a mouldy, fungoid proliferation on the uppermost layers of the epidermis, takes on a more or less horny appearance. The epidermis, or upper skin, especially of the trunk and extremities, exhibits dull spots of the most varied shades of colour, from bright yellow to blackish brown. The spots gradually increase in circumference, then coalesce and spread over large portions of the skin, at the same time changing their colour and scaling off like bran.

The treatment consists in the observance of the strictest possible cleanliness, the frequent changing of the underlinen, the application, from time to time, of complete packs, at from 77° to 81° F., followed by complete washings of the body at 77° F. in combination with dry friction; in daily damp friction at from 73° to 77° F. in combination with subsequent strong rubbing. The application of warm or tepid baths is also advisable.

Herpes Tonsurans is also produced by a fungus (mould fungi). It is an infectious form of eruption, which has its chief site on the hairy parts of the head and in the hairs of the head and of the beard, but may equally attack other parts of the body, and even the finger-nails. Its spread is chiefly due to the worthy practitioners of the hairdresser's art, the barbers and the hairdressers, who distribute the malignant fungus among their customers. Then the fungus that has been implanted in the skin produces spots of a reddish brown colouring, which gradually scale off, and thereby bring about a cure, or which, in consequence of an inflammatory infection of the skin, turn into smaller or larger pustules. The

pustules then in a short time become covered with a scab. During the time of the drying up, however, new pustules form around the old ones ever afresh, become joined with these, and bring about all kinds of tears and rents in the skin.

When the eruption attacks the hairy parts of the head, the hair falls out from the affected portions, leaving bald spots. It is these bald spots that account for the name that has been given to this disease, namely, herpes tonsurans, or "barber's rash." When the finger-nails are the site of the disease, they become brittle, cracked, and full of rents, and in many cases are shed altogether. The disease is a very wearisome one, since, by reason of the transference of the fungoid proliferation to the relatively healthy parts of the skin, in the neighbourhood of the first eruption, new foci, or centres of the disease, are constantly being formed, and the perfect healing of the old and dried-up places in any case takes weeks, and sometimes even months.

The treatment of herpes tonsurans is the same as that prescribed for "Scaldhead."

Herpes, Tetter (Lichen Eruption) is the name of an eruption of the skin which only appears in a chronic form, takes in its development a quite definite course, and is divided into a great number of kinds, and is, as a rule, very hard to get rid of.

The eruption generally appears in the form of pustules or vesicles on an inflamed ground; either the pustules dry up or they suppurate, or other changes happen to them, therefore the following forms of "tetter" are distinguished.

Herpes (Vesicular Eruption) is the name of an eruption which is characterised by the appearance of small vesicles, grouped closely together on a circumscribed, inflammatory, reddened ground, and which are at first filled with a bright, serous, whey-like, turbid purulent fluid. After a few days the vesicles dry up to a thin brown scab, which then falls off without leaving any scar behind. Through new relapses or outbreaks the disease may drag on for a considerable time. The eruption with which we are now dealing causes, while it lasts, and during the period of its outbreak, itching, and sometimes also pain and a sense of burning. It often breaks out in the face and on the lips, especially in gastric conditions and in fever as a critical indication after strong emotional excitements, etc., and then forms vesicles of the

size of lentils, which may also extend to the mucous membrane of the cheeks, the palate, and even the tongue. The eruption of herpes is also often found on the sexual organs, on the male foreskin, and on the lips of the vagina. It is, however, not contagious through sexual intercourse, and is only exceedingly annoying on account of a sensation of pricking and burning itching. Finally, as a further form of herpes, shingles, or herpes zoster, has to be considered, which, as a rule, proceeds from the back, and takes its way around the abdominal region, forming a kind of girdle of about a hands-breadth wide, or may appear in the form of a ring around the breast and the back. In many cases it appears only on half the side of the above-mentioned parts of the body, and is then generally accompanied by pains and violent fever. According to the part of the body where herpes may appear, a large number of different kinds of herpes are distinguished, such as the ring or wreath herpes, which encloses an apparently healthy part of the skin with its single red ring-formed spots and pustules; so also rainbow or iris herpes, in which the vesicles of a single group are surrounded in the middle of the circle formed by one vesicle. As to the curative treatment of the dry eruption of herpes, one must act locally by smearing the affected parts, especially the scabs, with oil of almonds, or with olive oil, or one should dab them with cotton wool or lint that has been moistened with water at from 73° to 77° F. In the case of herpes on the sexual organs one should use sitz baths at from 86° to 88° F., night-stool steamings or sitz vapour bath (Fig. 116), as well as in the intervals a stimulating and only moderately wrung out iliac pack at from 73° to 77° F. Under the iliac pack cover the inflamed parts of the skin with moistened lint or cotton wool.

Shingles requires, as far as local treatment is concerned, a dabbing with dampened cotton wool or lint, until the commencement of the formation of the scabs or crust, in combination with subsequent powdering with rice powder, and then, when the formation of scabs has commenced, the smearing with oil of almonds in order to soften the scab. Naturally, the places that have been dabbed with the cotton wool and moistened with water at 73° to 77° F., are first to be dabbed until they get dry with dry lint or cotton wool before they are powdered with the rice powder. Only chemically pure lint or cotton wool may be used. Ordinary wadding is of

no use for sanitary purposes. The sufferer from shingles should also take a daily warm or tepid bath, which may with advantage be gradually raised to the temperature of 99.5° F. by the cautious pouring in of hot water. In the intervals, stimulating and only moderately wrung out trunk packs, at from 77° to 81° F., should be applied. The diet should be mild, non-stimulating, and for the most part vegetarian.

Vesicular eruption has been already discussed by me on page 1270, as also Beard Acne on page 753, and I would therefore refer to what is there said about these diseases.

Hip Bath. (See Index.)

Hip Joint, Inflammation of the; Spontaneous Limping.—Inflammation of the hip-joint is a disease occurring very frequently in scrofulous children. It may easily be recognised in a child afflicted with it by his irregular step, and the manner in which he drags the affected leg behind him. But it is also to be seen in youth and in more advanced age. It is most important that the disease should be diagnosed in its earlier stages, and adequately treated, so as to avoid malformation and consequently a limping gait for the rest of life. The symptoms characteristic of the disease are as follow: Periodically occurring and unmistakable pains, felt mostly in the morning on getting out of bed, or in walking, and which gradually increase in intensity as the disease pursues its course. It is accompanied at the same time by other ailments, such as lassitude in walking, a sensation of heaviness and impotency in the upper part of the affected thigh, and at times sharp shooting pains throughout the inflamed hip joint, which is also very sensitive to the touch. Inflammation arises—as chronic bone and joint diseases generally do, in old age, from exhaustion of the vital sap—from scrofula or tuberculosis. Starting generally in the peristeum of the leg, the inflammation occurs in the head of the thigh bone, in the cavity of the hip joint, and then, by further extension, it seizes the whole spongy mass of the head of the joint. The change caused by the shortening of the diseased leg next lengthens the same.

The patient feels that his leg is longer when standing, and that it drags after him when walking. Should no successful treatment take place in this stage in which the inflamed and swollen joint head pushes itself out of the hip joint cavity, pains in the knee joint are added to those of the hip joint. The leg grows thin, and, with innumerable disturbances of the bodily nutrition, the shortened condition, for

which there is no remedy, sets in. The joint head is then either destroyed, and the neck of the thigh bone driven by the contraction of the muscles into the partly destroyed cavity of the hip joint, or it pushes itself behind and upwards; the corresponding half of the joint swells; the upper thigh is drawn towards the lower part of the body, and the knee is bent. This condition leaves the patient in a painful state of lameness, because, after the disturbance of the joint, a bony growth takes place between the hip bone and the upper thigh. When the course of the disease is unfavourable, generally a long and wearisome suppuration sets in, and finally, after blood poisoning or hectic fever, death takes place. Hip nerve pains, treated in the following article, must be distinguished from the former, and are not nearly so dangerous. They exactly correspond to the course of the nerve, and are never followed by deformity of the leg.

The treatment of inflammation of the hip joint must be directed towards the fundamental disease, scrofula, or tuberculosis. (See both these diseases). Incipient appearances (as those of inflammation, etc.) are to be treated locally in the manner already described.

Hoarseness. — This trouble does not indicate any independent disease, as is often erroneously supposed, but is always a co-symptom of a different illness, generally of an inflammatory nature — a sore throat, catarrh of the nose (or head) or the windpipe. The mucous membrane of the vocal cords is swollen and inflamed; they become inelastic, and are covered with specks of mucus, or are ulcerated. The voice is thick, discordant, or, if the vocal cords have lost their power, the sound is quite absent.

A characteristic hoarseness is noticeable in quinsy, cholera, and syphilis.

The proper treatment aims at the removal of the cause. In a case where this is not known, take a vapour bath (No. 3) every other day, together with the following:

A whole ablution of 77° to 81° F.; every morning a wet rubbing down, 73° to 77° F., besides one or two hip baths daily, 82° to 86° F., for ten or fifteen minutes. Foot baths are also very helpful. The throat should be covered with a stimulating compress, 68° to 72° F.; at night a similar one, but at 77° F., can be applied to the body, as well as stimulant throat compresses at 68° to 72° F. In changing the compresses at the throat, wash the neck with water at 68° to

72° F. Breathe pure, fresh air, avoid smoking and alcoholic beverages, and adopt a plain, digestible, vegetarian diet. Use enemas in case of obstructions.

In chronic hoarseness, the adoption of a modified or even strict abstinence treatment is recommended, but in many cases the General Strengthening Treatment is of service. As factors in the relief of chronic hoarseness, we may mention gentle massage of the neck, massage of the whole body, stimulant bandages 68° to 72° F., vapour baths, foot vapour baths, gargling with water, 66° to 70° F., following the exercises No. 8 Curative Gymnastics. Further, do not talk or sing; remember that hoarseness, viewed medically, requires the practical application of the old proverb, "Speech is silver, silence is golden."

Homœopathy.—Homœopathy means a cure whose theory and principle, "*Similia similibus curantur*," has in English about the same signification, "Like cures like." It is the curing most readily, conveniently, perfectly, painlessly, and effectively, of diseases by a process which, in a healthy body, produces similar affections. From the theory comes also the meaning of the term (Greek *homoios* = similar, and *pathein* = to endure.) Homœopathy first came into use towards the end of the last century, through the agency of Dr. Samuel Hahnemann, who was born at Meissen, in Saxony. He gained much esteem for his contributions to medical science, from before whose mysteries he tore off the veil of weakness, helplessness, and incapacity, and fearlessly laid it open to the ingress of more advanced knowledge. He shook the school of allopathy, which felt secure in its foundation of traditional authority and theory, and convincingly showed up its confusion, incapacity and ignorance of the theory and practice of medicine. He created, on the one hand, a schism in medicine which exists to this day, and on the other he brought its science to an almost complete rupture with the past, as also to one of the greatest transformations it has ever experienced. The limits of such a book as this prevent my treating of it at any length from an historical point of view, and I must content myself by giving a short description of the particular nature of the aforesaid curative science. I borrow the following extract, partly from an article which I at that time composed, and which afterwards was embodied with Bilz's book, "The Nature Cure," produced subsequently to mine. On p. 514 I wrote as follows: Homœopathic treatment rests on principles

by which it deviates as well from the present as the past allopathic school—first by similarity, and secondly by the dilutant or potent principle.

1. The principle of similarity is expressed by "*Similia similibus curantur*," like is cured by like; while, by contrast, the allopathic principle is "*Contraria contrariis curantur*," "unlike is cured by unlike." Homœopathy teaches that a medicine which, in concentrated doses, produces appearances of poisoning in a healthy man, can only effect his cure by producing in him symptoms similar to and characteristic of the disease. For example: A medicine which, in concentrated doses, produces evacuation in a healthy man, is, in minimum doses, a remedy against it in a sick one. Accordingly, homœopathy applies to the cure of diarrhœa a so-called evacuation remedy, laxatives in minimum doses, just as Allopathy, in accordance with its motto, "*Contraria contrariis curantur*," orders it in concentrated doses, on account of contrasting appearances, viz., a remedy against constipation.

2. The dilutant or potent principle.—Hand in hand with the principle of similarity, as indicated above, goes another process. Allopathy generally orders its remedies in doses, which, as Dr. Professor Gustav Jäger justly observes, lie on the other side of moderation in the direction of poisonous doses, and these act so strongly, that the poisoning, on account of differences of individual disposition, and in spite of the utmost care, cannot avoid producing fatal results. Homœopathy, he further remarks, remains on this side, concentrating with its medicinal measures; therefore it prescribes a lesser dose (amount of medicine), and also teaches us that, by increasing the dilution, the strength (essence) of the medicine is enhanced; while allopathy teaches the opposite, that by the giving of a smaller dose the medicinal effect would be lessened, and that by progressive dilution it would be quite lost. To speak at this point more closely of the practice of dilution would take too much space, and I therefore only give a short representation of the particular nature of homœopathy. It deserves therefore to be said that homœopathy has been no small champion of the Nature Cure, and that it has been a true companion of the same in many instances. Then Hahnemann, the founder of Homeopathy, was the first who drew up the curative diet. Formerly a physician prescribed simple medicines, leeches, opened veins, etc., but took no heed of diet. Hahnemann, on the contrary, gave exhaustive and minute

prescriptions as to diet for the sick, as to rest, motion, air, cleanliness, in short, on all points of hygiene, and in such a manner that, in their smallest details, even in our day, they must appear striking and exhaustive, much more so at a time (1774) when care of the health was never and nowhere spoken of. Twelve years later the well-known Dr. Hufeland wrote his work on "Microbes," from which time the advent of diet and hygiene is dated. Hence Hahnemann, in a treatise entitled "Directions how to Cure old Injuries and Putrid Sores," which formerly were treated unskilfully by the curative application of cold water, exhaustively wrote of them, and gave minute directions concerning their treatment, viz., upon baths, warm baths, duration of such, conduct in and after baths, friction, half and full baths, thus giving the first impulse to the enhancement of water as a curative agent. We see then that homœopathy, on the subjects of diet and hygiene, as well as on the water cure, was effectively severed from former customs, and entirely placed on the footing of a natural life and health method, and here, hand in hand with nature, and antagonistic to the existing medical treatment, it remains until this day. When time and circumstances forbid the application of the natural health factors of water, air, temperature, diet, etc., refuge can always be safely taken in homœopathy. Homœopathic remedies, if they cannot help by reason of a false choice, do no harm in any case. This is particular to be observed, in order to oppose a certain fanaticism amongst those who treat disease without drugs, and who blindly and unfairly reject all that exists in the way of even well-tried and successful remedies, if administered internally. The only disadvantage attendant upon homœopathy, when it has not succeeded in its choice of means and has not effected a cure, is loss of time, which of course is a comparatively small one, and cannot be taken into account in the case of chronic diseases; for it lies in the nature of homœopathy to effect a very quick cure or none at all. Damage cannot by any means be done to a human organism by the application of a homœopathic health remedy, when there is reason to assume that there has been a change in the physiological state of the body; and the allopathic sneer, that a healthy man can swallow any quantity of the homœopathic "stuff" without shadow of effect, is untrue. When the extraneous matter stands in no relation to the normal or diseased matter of the molecular structure of the body, no

greater effect takes place in the physiological working of the body, and the change (no harm!) is very transient. But as long as the homœopathic matter remains in the body — its exit not yet having taken place through bowels, kidneys, or skin—it exercises a very peculiar and energetic effect, which, with the collective movements of the present organisation, resembles an instrument newly introduced into an orchestra, pursuing its own course, the old instruments doing likewise, regardless of effect. In cases of acute and doubtful disease, where the question is one of life and death, and loss of time is proportionately important to loss of life, one should not think of risking the choice of a wrong remedy, and the best thing to be done is to apply the water cure, which is so certain in its effects.

Honey.—Honey is the product of bees, that, by their digestive process, change the sugar matter contained in the so-called nectar glands of plants into honey and wax. Commercially, the following kinds of honey are distinguished: Virgin honey, which of itself issues from the honey comb, and is weak, yellowish, and transparent; red honey, which is obtained by heating and pressing the honeycomb; clarified honey, which is obtained from the red, by sifting, skimming, and straining, and which is of a deep red brown, but perfectly transparent colour. In many districts honey is adulterated with the juice of the pear. At first this makes it thicker; afterwards it turns thinner, and eventually acid fermentation sets in. Frequently honey is also adulterated with lime. The use of honey has the most favourable influence on the development of the human body, and especially contributes greatly to the successful growth of little children. Children who grow quickly have a pale look, are easily wearied, and have an instinctive longing for confectionery and sweets of all kinds. This instinct springs from the necessity of supplying food matter to the body, which, when administered immediately, enters into the blood, and compensates for the strain upon it caused by the all too rapid development. In this case, honey, which is preferred by children to other sweets on account of its pleasing aroma, is most wholesome. Its use at the breakfast table is to be specially recommended, when it should be taken in conjunction with wholemeal bread and hot milk. And in like manner it is first-rate for grown-up people, on account of its strengthening and warmth-giving properties. Father Kneipp had, before me, the pleasure of

advocating it as a natural curative agent. He had tried bee-culture himself, and even written a treatise, which testifies that, as well as Omker, he understood and could rightly set forth his subject. He directed his attention, first of all, to the healing properties of honey, and it is a positive fact that his many successful cures owed much to its invaluable help. At all events, it is not the use of honey by itself, but its skilful blending with other natural healing remedies that produces the most favourable results. It might be of the greatest interest for a reader so disposed to learn what Father Kneipp has to say on the application of honey in view of health. "The former generations affirmed that young people should not eat much honey, as it was too strong for them, but it is useful to old people as a 'pick-me-up.' I have frequently prescribed it, and always found it act with excellent effect. It is laxative, purifying, and strengthening. Mixed with tea it has long been well known as a remedy for catarrh and phlegm. Peasants know how to make use of it in cases of external sores. To those who have not the necessary dexterity in applying the water cure, to such I strongly, recommend recourse to this simple, harmless, and effective emollient before all others. The preparation is very easy. Take half-parts of honey and flour, and mix well together by the addition of a little water. Honey ointment should be of a rather thick, not fluid, constituency. Also, used inwardly, honey acts efficaciously in many other ailments. It rapidly closes up small stomach ulcers, which it ripens and heals. I should not advise the taking of honey by itself, but strongly recommend it to be used with a judicious admixture of tea. Without this its effects are too strong, for before it has gone down the throat a "rough" effect is produced. When difficulty of swallowing, or such inconveniences, are felt by anyone, they should boil a teaspoonful of honey with half-a-pint of water. This will form the sweetest and most delicious of throat-gargles for singers; and if a drop should happen to slip down, they need not be afraid of stomach derangement. The purifying and strengthening qualities of honey-water for the eyes is well known. Boil a teaspoonful of honey in half-a-pint of water for five minutes, and the decoction is ready for use. I have a case in mind of a man over eighty years of age. He was in the habit of daily preparing his wine (for table). He added a teaspoonful of pure honey to some boiling water, and allowed it to boil for

a time. Presently he had a wine which tasted excellent, and was at the same time most strengthening. He used to say, 'I owe my strength and vigorous old age to the honey-wine.' That may be. This much I know from my own experience — for I have prepared a very considerable quantity of it, have seen much of it used, and often drunk a glassful of it myself — that its effects are aperient, purifying, nourishing and invigorating. And not only has it this effect on the feeble but on the strong. It reminds me of the 'mead' of ancient times. To this unadulterated beer, they, as Tacitus relates, principally attributed their old age. Honey is excellent for healing ulcerated throat, if a spoonful of honey is boiled with two pints of water for a few minutes, and from two to four spoonfuls of it taken every hour. The effect is good, and such a cure is most agreeable. He who has taken poison, or received poisonous matter into his system, should swallow two to four spoonfuls of honey. Honey suffers no poison to remain in the stomach. Half-a-spoonful of coriander boiled in two pints of water, with one spoonful of honey, cleanses the stomach if a spoonful be taken every hour. A spoonful of fennel, boiled with one spoonful of honey for twenty minutes, ejects bad stomach gases if two spoonfuls be taken every two hours. Weak and delicate children should receive daily some boiled milk to which has been added as much honey as will lie twice on the point of a knife, and in a short time they will be transformed into strong and healthy ones. And in many ways honey may be usefully employed in the household. But, I must add, for the benefit of those who use it, that when it is taken for medicinal purposes it should always be boiled, as otherwise it would prove too sharp. Those who are troubled with a cough, and use raw honey for it, will find it grow worse rather than better. It should be boiled in either water or milk, when the cough will be both softened and diminished."

Honey-wine, according to Kneipp. (See "Honey.")

Hospital Erysipelas. (See "Erysipelas.")

Hot Water Bottles. (See Index.)

Humpback. (See "Spinal Column, Curvature of the.")

Hunger, Abnormal, is the result of a chronic disorder in which the digestive organs are also involved. Even though the process of digestion goes on to all appearance as usual, the disordered condition depends upon a false function of the digestive nerves, which, again, is the outcome of

a general disturbance elsewhere. Hypochondria, hysteria, chlorosis, anæmia, diabetes, as well as brain and spinal cord disorders, worms, etc., include abnormal hunger among their many symptoms.

The treatment must be applied exclusively to the dominating cause.

Hunger and Thirst Cure. (See Index.)

Hunger Typhus. (See "Typhus.")

Hydrochloric Acid Poisoning. (See "Poisons.")

Hydrophobia. — Hydrophobia is a disease which is caused by infection, through a contagious matter called "hydrophobia poison," the sufferers from this disease being mankind as well as animals (dogs, cats, wolves, etc.). The hydrophobia poison may be carried from any living being to another when the infectious matter enters a wound—it makes no difference whether the wound is a bite or a previous injury to the skin. When a man has had the misfortune to be bitten by a mad dog, there will be a stage of incubation, of which the duration depends on the age of the bitten person, but generally from six to twelve weeks. It has, however, in exceptional cases, lasted from six to seven months.

The premonitory stage will have the following symptoms:

If the bite has not yet healed, it will become loose, spongy, purple, and of a bad colour; it will itch and burn, and a thin fluid will be secreted. If the wound has healed and left a scar, it will become reddish-blue, and burst open again, as a spongy, discoloured ulcer, that either itches, burns, and aches violently, or is perfectly lacking in sensation. Swellings and pains, proceeding from the ulcer, will now follow the course of the nerves and lymphatic vessels, and spread over the rest of the body, and symptoms such as pains in the neck and back, difficulty of swallowing, general relaxation, restlessness, fear, palpitation, hurried breath, sleeplessness, a feeling of cold, giddiness, cramp, convulsions, etc., will appear. A thick frothy saliva collects in the mouth. When the actual disease sets in, it is accompanied by a violent cramp-like contraction of the alimentary tubes (cramp of the œsophagus), which becomes much worse when liquids pass down the pharynx and alimentary tubes. This gives rise to the patient's great fear of quenching his burning thirst with water. There is at the same time a violent cramp of the respiratory muscles, which generally lasts from fifteen to twenty minutes (sometimes it lasts half-an-hour), and renders

breathing very difficult. This terrible paroxysm of the alimentary tubes and larynx is only occasionally interrupted by a pause free from cramp. The patient passes into a rabid state, during which he completely loses consciousness. This stage does not, as a rule, last longer than four days, death generally taking place after two or three days of agony.

The treatment of hydrophobia is the same as that of snake-bite poisoning. After a bite from a dog suspected of madness, the wound should be cauterised or sucked out immediately, and stimulant compresses applied to it.* One should afterwards, for a long time, use bed vapour baths, stimulant trunk baths, or stomach baths, as well as bandages round the calves of the legs, in order to prevent the harmful action of the poison which may already be circulating in the blood. Or one may for a time follow the directions of the "Strict Abstinence Treatment." When the disease has broken out, one should treat the symptoms according to the treatment mentioned in II., Part. VI., as well as in the articles "Asthma," "Gullet, Cramp of the," which will be found to be a palliative help.

Hydro-Thorax, or Water on the Chest, arises from the collection of fluid in the thoracic cavity or the cavity of the chest. It is one of the sequelæ or conditions that arise as an after consequence of other kinds of complaints; of stoppages and obstructions in the region of the air passages, of the circulation of the blood, from heart diseases, from certain kinds of decomposition of the blood, and decomposition of the fluids, such as those that arise in syphilis, ague, cancer, inflammation of the kidneys, and so forth.

The symptoms of hydro-thorax have a great similarity with those of moist pleurisy, for one observes, on examining the thorax, that there are signs of disturbance in the respiration, and an increase in the circumference of the thorax. But as soon as percussion is used (that is by tapping with the finger on the thorax), a material difference is at once heard—the deadening sound given forth is as a rule, in

* A prescription for the bite received from a mad dog was given by a woodman named Gastel (when he was eighty-two years of age). He said: "I was bitten by a mad dog, and will not take the secret into the grave of how I cured myself. I took wine-vinegar and water, tepid (both washed the wound well with it and dried it). Then I put a few drops of hydrochloric acid on the wound, because mineral acids neutralise the poison of the saliva."

the case of hydro-thorax, perceptible on both sides, whereas in moist pleurisy it is generally only present on one side. Also an important sign for the distinguishing of the two diseases is afforded by the fact that, in the case of hydro-thorax, every change of position in the patient alters the boundaries of the sphere in which the deadening of the sound is perceptible (for instance, the deadening which has been discovered in a certain place when the patient is standing up or sitting upright, vanishes as soon as he takes a horizontal position, and vice versa), whereas, in the case of moist pleurisy, these phenomena are wanting. Thus, when the disease is fully developed, the deadening of the sound is perceptible in whatever position the patient may be holding himself. Very frequently, however, a long-lasting attack of hydro-thorax ends in damp pleurisy. The beginning of the complication is, as a rule, recognised by the occurrence of violent stitches in the side and pains in the chest, otherwise, as I must repeat, the symptoms of hydro-thorax are pretty much the same as those present in cases of moist pleurisy. They consist chiefly in spasmodic respiratory troubles, as well as great dyspnœa or difficulty in breathing, which forces the patient to sit upright in bed. The malady lasts, with fluctuations in its intensity, as a rule for many weeks or months. The Curative Treatment is only attended by satisfactory results when one succeeds in getting rid of the primary disease. In the case of weak patients one should follow the rules of the General Strengthening Treatment, and, in the case of strong patients, those of a cautiously conducted and modified lowering cure. In order to counteract the chest troubles, apply the palliative remedies prescribed under the heading of "Chest, Oppression of the."

Hygiene is the term applied to that branch of science which teaches the investigation of such acts and processes as man may adopt to preserve his health.

Hyperæmia, or having an excess of blood, is the name given to an abnormally large collection of blood in the vessels of a special organ, whereby some form of disease may be called forth.

Hypnotism. — With the word hypnotism (Greek *hypnos*, sleep) a number of states are presented to the mind by which the will-force experiences a check and the consciousness is often disturbed. By the word hypnotism we mean the scientific relations connecting mental and physical inter-

action as presented to the mind by hypnotic conditions. Formerly those conditions were represented as animal magnetism, somnambulism, etc. The science dates from the earliest times, and doubtless the celebrated Pythia, at Delphi, experienced a hypnotic influence. The attempt to scientifically explain the somnambulistic condition was made in the middle of the eighteenth century by the German, Dr. Mesmer, whose original view was, that heavenly bodies operated on a living organism by means of a fine fluid. After the French Revolution, a Portuguese priest, Abbé Faria, formulated the theory that somnambulism and its causes were not to be found in the magnetiser, but in the subject magnetised. The honour of elucidating the theory from the prevailing conflicting opinions belongs to the English surgeon James Braid, of Manchester, who, in the year 1840, discovered that many persons were hypnotised by simply placing a shining body firmly against their forehead, and retaining it there for several minutes. The crowning point to this subject, for which many German scientists had done so much, was at length, in the year 1879, given by the Danish mesmeriser Hansen, whose experiences at first were looked upon as frauds by everyone. But soon all doubt was dispelled, and in 1880, hypnotism was publicly declared by the Scientific Society at Dantzic to be a positive fact. At the same time its research was continued at Nancy by Professors Bernheim and Liegeois, who further declared that hypnotism was induced by so-called "suggestion" or "influence."

Hypnotism may be divided into three different divisions, viz., catalepsy, lethargy, and somnambulism.

Catalepsy is characterised by immobility, and lowering or loss of the voluntary motions. A hypnotised subject resembles a human statue, his limbs are stark and stiff, not, however, in a cramped fashion, but pliant as wax, so that they may be arranged in any position, in which they will remain for hours.

In lethargy, the same appearances in every respect are found, but only with this difference, that when the limbs are raised, as in the case of a dead body, before rigidity of the muscles has yet set in, they fall again helplessly.

Lastly, somnambulism is a consequence of the first two conditions by gentle friction of the top of the skull of the subject. In this state the activity of the mental organ is weakened, especially in the form of delusions. Thus,

somnambulism is the most favourable condition for effectively inducing suggestion, by which, as I have already said, various conditions may be produced, and the patient treated at the will of the operator. For the production of the hypnotic state, previous means of fixing the attention are necessary, as, for example, the above-mentioned measure of Dr. Braid, viz., fixing a shining body on to the forehead, while, nowadays, psychological means are considered of more service, and to them the chief effect is ascribed.

Hypnotism, up to date, expresses the voluntary condition somewhat in this way: that the hypnotic representation can be produced in the subject by merely saying to him some few words, as "Just think of sleep! Try to sleep!" and his eyes immediately begin to close, and he is soon fast asleep. In some people, especially those predisposed to hypnotism, a simple command, as "Sleep!" or even a gesture, will, against their will, produce the desired effect. Generally speech is made use of in suggestion (verbal suggestion), but gesture is optional. The awakening is managed either by sharp mental stimuli, as by the application of irritation, or by the simple but energetically expressed, "Wake up!" An operator is not absolutely essential to the production of the hypnotic state, as many people, by auto-suggestion, can put themselves into this state, and also take themselves out of it at pleasure. Concerning disposition to hypnotism, more than half of mankind could be so treated, especially after a few repeated trials. Those who maintain that they are not hypnotic subjects, and also those who bring all their will-force to resist it, are generally left unaffected. Small- or diseased-brain individuals, and children from seven to eight years of age, are difficult and almost impossible subjects. That nervous or hysterical persons are the most easily influenced by it is erroneous. As the voluntary motions are actuated under hypnotism, as, by command, the subject may be forced totally against his will to act as desired—as, to move an arm or leg, to get up from his chair, to stretch himself along the floor, laugh, in short, do as he is bid. In like manner action may be forbidden, as the moving of a limb, when immediately the organ seems maimed. Certain muscles may also be deprived of their functions which would otherwise act quite normally, as, for example, a subject with arm at liberty cannot make use of it to write, when writing is forbidden. But whilst there is no hypnotic condition under which the voluntary motions may

not be transmuted by suggestion either wholly or in part, only about one-fifth of the hypnotic subjects experience anomalies in their organs of sensation. In the latter it is suggested to the subject that he sees trees, animals, etc., which of course are not there; that he hears music when none is to be heard; or he experiences, by suggestion, a disgusting odour, a bitter taste, etc. When this takes place without complemental object, as when he sees an imaginary tree, etc., it is termed hallucination. On the other hand, when one object is mistaken for another, as a cat for a book, a cake for music, it is termed illusion. In this state, as the mind is being illusionised, the subject's face undergoes a transformation. No gourmand can show a more delighted countenance than a subject when he supposes he is enjoying a delicacy. Such mind illusions may also have consequential occurrences independent of the will. When it is suggested to a subject that he smells an onion, tears come to his eyes; another, to whom loathing has been suggested, gets disgusted, and begins to vomit. And the same loss of function occurs in the lower as well as in the higher organs.

The illusions so far named—those by which objects are imagined to be present or absent—are termed positive; while, in direct contrast to these stand the negative illusions, those by which virtual objects, etc., are imagined to be absent. For example, persons and things become invisible, music inaudible, etc. In short, by suggestion, both eyes can be blinded, certain parts of the body made senseless to touch, or the emotional sentiments, as love, longing, sensibility, impulse, inclination, etc., called forth. Also hypnotism can obliterate past events, or substitute true for false occurrences, as when a man is made to forget his birthplace, or, if born in London, made to believe it was Dublin. These memory deceptions are also, by the so-called “past suggestion,” made to bear upon the awakened state, as when an operator suggests to his subject that, on awakening, he has got to carry out a certain commission. And this punctually takes place, although when he has been awakened he remembers nothing at all about it. The results gained by suggestion, when exercised upon healthy subjects, have been the means of lately bringing hypnotism within the category of curative agencies; and it is in consequence of the so-called “suggestion therapeutics,” that nerve troubles of various kinds—neuralgia, hysteria, paralysis, rheumatic pains, and other ailments, have been

successfully treated. And even anatomical changes can be effected, after the mind has been a few times successfully brought to the proper state, as, for example, when it has been suggested to the subject that blister plasters are being applied to his body, in order to create blisters, it is an unquestionable fact that, under the influence of the suggestion, a marked change takes place in the mechanism of his body.* However, experiments on the human body must be very cautiously made, particularly in the case of nervous people, so as to avoid occasioning an attack. This might easily injure the health, or cause death. Therefore, in the application of hypnotism in the interests of health, it should only be taken in hand by those who are thoroughly competent, otherwise more harm than good would be certain to accrue.

Hypochondria. — Hypochondria is a species of mental abnormality, in which the attention of the sufferer is overweeningly and exclusively turned to his own body. It always develops gradually, and is either inherited, constitutional, or acquired. Apparently healthy people begin all at once to have doubts as to the state of their health, and get much concerned about it. This most frequently happens to people who have no vocation in life, or to those who lead a sedentary or lonely life; to those who have little or no intercourse with others, or to those who read many medical works, and wish to show off the fruits of their undigested wisdom to others. This disease is frequently brought on by unfortunate circumstances in life, depression of the mind, continual mental activity, weakening influences upon the body, insomnia, a nervous or highly-strung constitution, etc.; and when to these are added such conditions as derangement of the digestive organs, aided by a chronic derangement of the bowels, an irritated state of the nerves of the stomach is produced, and hypochondria is the result. Very often it is brought on by overwhelming exertion, as, for example, when more is expected of anyone than they are possibly able to accomplish, their ambition, however, forcing them to make the attempt; or again, by weakening of the spinal cord, self-abuse, excess of, or forced total abstinence from, sexual intercourse. There is

* My authority for this fact is the Berlin physician, Dr. Albert Moll, who, with the exception of Professor Krafft-Ebing, is considered the most renowned specialist of the suggestion treatment in Germany.

also a species of hypochondria left after an attack of syphilis, when the patient is terrorised by the dread of another attack. Other causes are apparently successfully drug-treated diseases, especially those of an infectious or miasmatic character; twisting of the spinal column, thereby retarding the blood in its natural course; rupture of the intestines, causing damage to the digestive organs; certain forms of diseases of the cavities of the breast and stomach, gout, rheumatic affections, tape worms, etc.; or by a total change in accustomed habits—as from activity to inactivity, when the normal physical action of the body is completely changed. The mental toiler becomes peevish from want of his accustomed duties, and the physical labourer pines for his beneficial daily work. Soon derangement of the nerves and digestive organs takes place, and it requires but the non-intelligent reading of a medical book to bring the disease to the stage of completion. The hypochondriac then seeks to find out an ailment corresponding to his supposed symptoms. Gradually, by persistent attention to any change in his emotions or bodily functions, a chronic depression and physical languor sets in, and this, brought on wholly by auto-suggestion, entails further damaging complications through anxiety and care. Sometimes it is the head, sometimes the stomach or the spinal marrow, or the lungs, spleen, and liver, that are supposed to be affected, and then the hypochondriac seeks anxiously to find out any change in his system corresponding to the actual symptoms of the above named. He who supposes that he is affected by some stomach ailment, looks at his tongue many times daily in the mirror. A great depression seizes him when he finds it coated. Another preferably turns his attention to the colour, quantity, and nature of his excretions, and these secretions form a supposed disease, which is the constant object of his solicitude and close observations. Again, another exclusively contemplates his skin. The smallest little red speck, or trivial abnormalities, precipitate him into apprehensive dread of an outbreak of tetter, cancer, or even syphilis. Another constantly watches the action of his pulse, and counts its number of hourly beatings, out of which he diagnoses a violent attack of heart disease. Constipation, a swollen condition of the body, or even a simple visitation of indigestion, are all very grave affairs. Stomach pain proceeds from tumours; pains in the breast from consumption, pains in the back from wasting of the spinal cord; headache, from brain affections, etc.

Every separate organ of the body is drawn within the pale of their morbid contemplation. Not the smallest normal sensation can be felt without the most serious consequences being attached to them. In short, every part of the body, from the sole of the foot to the crown of the head, is more or less the object of morbid surmisings. Many hypochondriacs can distinctly feel frogs hopping, or spiders crawling about in their stomachs. The condition of such a patient is very bad. Should it in time be blunted by his incessant complaint, he is not again afraid of such horrible exaggerations, or careful of applying them to his own case. The position of the doctor is not to be envied. Besides the inevitable loss of time spent in listening to the extraordinary and graphic descriptions given by the patient of the multifarious and constantly changing symptoms of his imaginary disease—for his nerves will speak out—he is liable to be in a delightful state of constant variance with the superior wisdom of the patient who has ascribed his trouble to a medical “fad,” and regards the consultation as a scientific disputation. In still graver cases, those which form the transition stage to hypochondriacal insanity, these morbid representations become fixed ideas. The patients carefully guard themselves from contact with others, or from objects they think might probably kill them, or they attribute their bad state to poison administered to them by others. They lose all initiative action or interest in what is taking place around them, think no further of the providing of the necessaries of life for themselves or families, and turn their undivided attention and feelings to contemplate themselves and the lamentably afflicted state of their bodies. A boundless egotism seizes them, and, in proportion, an intense disregard, and fear, aversion, and hatred of their neighbours. They change their physician with startling frequency, and have recourse to every curative agency, even to quackery. After several trials, they concoct a treatment for themselves, which for a time they pursue, regardless of its helpful or hurtful consequences. The general state of their health is consequently injured, and considerably thrown out of gear through derangement of digestive organs, sleeplessness, etc. Liver and spleen affections, indigestion, non-secretion of bile, constipation, palpitation, headache, weakness in the back, pollutions, cramp, etc., follow. When the hypochondriac has had a trial of the entire pathological field, he doubts human remedies, looks upon himself as incurable, and begins to

brood, and languishingly turns his thoughts to suicide. From the thought to the deed is but a step, and many cases of suicide, the motives of which will never conclusively be known, may more surely be attributed to hypochondria than to anything else. I have here given but a synopsis of the nature and appearances of hypochondria, although my representation of the ever-changing—according to individuality—disease can lay no claim either to thorough or exhaustive treatment. From the thousand and one causes of hypochondria, it goes without saying that the cure must be individualistic. The three principal cures for hypochondria—exertion, physical exercise and diet—require, above all things, to be cautiously applied. A *sine qua non* in treating a deep-seated case of hypochondria is the securing of an experienced and clever medical adviser, who should be able to decide in what direction the treatment is to be applied, and who, on the recovery of the patient, should watch closely to find out whether, with reference to the health curriculum, he is inclined to modify it at pleasure by carrying out either too much or too little of it. On the other hand, he should not place implicit confidence in his patient, as the latter requires an all-round mental influence to be exercised over him in order to rid him of his morbid fancies, which arise, less in consequence of fixed ideas than from the certainty of his actual sufferings and their apparent indications. Should a hypochondriac be advised as to self-cure, what he requires is a toning up of his general health, with due regard to that part of the cure entitled hemorrhoids and costiveness; and when his vocation allows it, these should be scrupulously carried out, with vigorous bodily exertions and mental stimuli, in order to divert his thoughts from any incipient fears as to the state of his health. The best prophylactic (preventive) against hypochondria is, I cannot avoid saying in closing my remarks, a practical, and, from childhood upwards, systematically exercised method of hardening the body to powers of resistive endurance, an education having a definite end in view, upright principles in life, and the happy choice of a worthy and sufficiently absorbing career.

Hysteria.—If in the above article, hypochondria, in its nature and appearances, has been pictured as a nerve affection which, with diversified results, reflects from the brain and spinal cord upon the other organs, so hysteria is a reflex action proceeding from the female organs to the nervous

system and its actions. But, while the hypochondriac acts upon his experience, the hysterical subject is a mere nerveless mechanism of reflex mental excitability, both in her sensations and motions. Hysteria is one of the many-sided and most frequently occurring diseases of females which shows itself in numerous derangements of the general health of body and mind. For the greater part, the disease finds its seat in the nerves of the female generative organs, and then, by means of the nerve centres of brain and spinal cord, irritates the blood vessels and produces emotions and sensitiveness. In many cases the disposition to hysteria is inherited; or frequently it is the result of training under either hysterical mothers or teachers. The disease takes place generally only in those females who have reached the state of puberty. The causes are usually as follow: Diseases of the generative organs, especially chronic uterine (womb) inflammation; retroversion (turning) of the womb, ulceration of the mouth of the womb, self-abuse, an overwhelming natural satisfaction with the procreative impulse, disease of the stomach, of the bowels, etc.; weakening influences of all kinds, mental discord, concussion of the nerves, etc. Widows, old maids, sterile women, unhappy married women, easily become hysterical. As we know that hysterical diseases arise from the want of nourishment to the nervous system, it does not follow that it is always dependent upon sexual causes. The necessary materials for building up and nourishing the constitution may be absent, as happens, for example, in the case of green sickness, blood impoverishment, etc., which, in lingering cases, are constantly accompanied by hysterical appearances; so that diseases of the sexual organs, mechanical, and, through self-degeneration, irritating effects of the same, etc., or mental discord and such like, are not always the cause.

On the other hand, there are many women suffering from womb ailments who are nothing less than hysterical. But the disposition is always there, whether hysteria arises from one or the other reason, and may be either constitutional or acquired. It is a very difficult matter to describe the appearances of hysteria as the symptoms are so very changeable. Mental and bodily unrest, excited and anxious bustling about, incapacity for sitting at rest, one moment twitching of the face or limbs, spasmodic shrieking, laughing, or weeping, convulsions with loss of power, a cramped state of

body as in epilepsy, palpitation, throbbing of the veins, coughing, heart-rending upheavals of the bosom, choking sensations, cramp in the œsophagus, with the feeling as if a ball were rising in it (*globus hystericus*), rumbling and other noises in the abdomen, a sense of fulness, pain and pressure in the region of the stomach, abdominal chills, pain and cramps of the womb, cramp in the vagina, urine impulse, constipation, colic, cold hands and feet, abnormal sensations of taste and smell, headache (in the top of the head, as if a nail were being fastened in) (*clavus hystericus*), sensitive scalp, over or under-sensitiveness of the skin of the various parts of the body, mental deceptions, hallucinations, seeing light—one appearance this day, and another that—sometimes this, sometimes that—all these go to make up the descriptive picture of hysteria; fickleness, an inclination to laugh or weep, changing quickly from gaiety to sadness, in short, a complete helplessness of will power. The sexual impulse is either abnormal, so that for its abatement the most extraordinary excesses are committed; or, as more frequently happens, it is altogether extinguished. Also emotional disturbances, which entail a paralytic condition, are often to be met with in complex cases of hysteria. A very special appearance is the hysterical nervous activity of body and mind, an anxious exterior, ceaseless activity, the out come of which is such as the housekeeping craze, the scouring and washing and purifying of everything which has been maddening to many a long-suffering husband. Just as in hypochondria, there is also in hysteria a natural running to excess in any direction; and as those who are in daily contact with hysterical subjects pay no particular heed to their incessant whining and everlasting complaints about their health, the latter are, of course, looked upon by them as unsympathetic, cold and heartless. But hysterical subjects very seldom submit to this. They must, on any account, be sympathised with, and when possible admired by reason of their afflictions; and should such not be forthcoming, they take refuge in excess. Indeed, it has sometimes been observed that hysterical folks wound themselves slightly, or do some trivial injury to their bodies, in order to have their cravings satisfied. Many of them make apparent preparations for suicide, which, however they forget to perpetrate. Above all, they think of the most undesirable ways and means, and that with a certain amount of refinement, of carrying out

their object, viz., the gaining of compassionate sympathy, and present a show of will-power contrasting strongly with their usual nervous condition. The duration of the disease is very fluctuating, generally speaking it may be measured according to the extent and intensity of the attack, and the more complications the picture presents the less likelihood there is of a cure being effected. Many times an intermission takes place as time goes on.

The treatment must be directed towards the fundamental cause. In most cases the application of the General Health Treatment will be necessary. Many cases may be successfully cured by applying the treatment for green sickness (Chlorosis). Frequently it is necessary to proceed according to the symptoms in order to nip any ominous appearances in the bud. (Compare more closely the article on "Headache, Paralysis, Fainting," etc.) The mental influence exercised by a physician is of much importance. It is advisable, therefore, in most cases to remove the patient from her family circle, who, avoiding the golden mean, either cherish an excessive solicitude for her condition, or are callously indifferent to it, and remove her to some well-conducted asylum, where the treatment should take the form of a quasi-after-education, quite apart from the fact that change of air and surroundings, with bright, cheerful society, together with an adequate health treatment, always exercises a favourable and bracing influence on the mental and physical health of the hysterical patient.

I.

Ice. (See Index.)

Ichthyosis, or Fish Scale Eruption, is the name given to a skin disease characterised by a morbidly-increased growth of the epidermis or external skin. The epidermis gradually becomes horny, and through the formation of deep (either round or angular) cuts or cavities, the covering of the body finally attains an appearance that strikingly resembles fish scales. The disease is, as a rule, congenital, although it generally first shows itself in the first or second year of life, in the form of a bran-like scaling off of the epidermis, generally exhibited over the whole surface of the body. The acquired form of the eruption, which usually only attacks single parts of the body, results from chronic inflammatory affections of the dermal organ, and generally has its site in

adults at the beginning of the disease on the extensor sides of the knees and elbows, whence it extends to the adjacent parts of the skin towards the rump or towards the head. On the other hand, the palms of the hands, the sexual organs, and the armpits, generally remain free from the eruption. The appearance of the scales is bright grey, sometimes greenish, or possessing a glitter like that of mother-of-pearl. The scales feel rough to the touch, and have a tendency to scaling off, especially on the face and hairy portions of the head. In the more advanced stages of the disease there is itching, burning, and a tense feeling of the skin.

The disease is chronic, and is very difficult to cure. Weekly one or two of Kuhne's cane-chair vapour baths, or cabinet vapour baths, in combination with subsequent whole packs at from 81° to 86° F., and trunk baths at 81° to 86° F., or hip baths at 83° to 88° F., on the other days of the week daily a complete bath at any temperature, have in the first place to be applied; three times a week the patient should have at night a stimulating three-quarter pack, at from 77° to 81° F., or a stimulating thick trunk pack at the same temperature, in combination with a 68° to 72° F. stimulating leg pack. When the head is chiefly attacked by the eruption, apply every other day head vapour baths, and on the intervening days head baths at from 77° to 81° F. At night the head should be entirely covered with a stimulating head pack at from 72° to 77° F. Sun baths, and light and air baths exercise a remarkably beneficial influence; they should be taken of long duration, in order to convert the chronic inflammatory condition into an acute one. If this takes place, and the affected parts of the skin redden, then, as a rule, cure is not far off. It is advisable to dab or sponge, with moistened lint or cotton wool, the parts where the scaling off is observed, several times a day, and then to powder them with rice powder, or with almond bran that has been sifted through a sieve. The diet should be mild and non-stimulating. In obstinate cases a strict lowering cure should be adopted.

Impetigo. (See "Eruption, Purulent or Pustular.")

Impotence. (See "Weakness, Organic, in Man.")

Inebriation. (See "Alcohol.")

Inflammation. — The influence of a mechanical, a thermal, or of a chemical stimulus on an internal or external organ of the human body produces, in a greater or less degree,

swelling, reddening, pain and heat. This condition is called inflammation; the blood flows rapidly to the spot where the irritation or stimulus has been set up. It collects there in the capillaries, congests them, ceases to circulate, coagulates and exudes a white serum containing albumen. At the same time, the working of the inflamed organ is interrupted by the pressure, and by the extension or undue expansion caused by the exudation. Through the irritation of the surrounding healthy tissues or of the neighbouring organs, the whole organism suffers more or less in sympathy, as a result of which greater or lesser symptoms of fever are produced. The further course of the inflammatory process depends upon whether the disappearance of the engorgement be rapid or slow. When this has been removed, and the supply to, and the withdrawal of, the blood have been brought into correct relation with each other, then further exudation ceases, and that which is already prevalent is re-absorbed.

In the case of an inflammatory condition that has existed for a length of time, fibrinous masses are often formed, which then bring about a coalescence or growing together of organic parts; as for instance, in the case of pleurisy or pleuritis, when the pleura grows together with the lung, or in cases of peritonitis, when the peritoneum may adhere to the intestine, and so forth. The exudation may, however, pass into a suppurative process, in which the pus makes a way for itself, either out through the skin or into some of the adjacent organs; or the inflammation may terminate, in the case of extended exudation, in a thickening of tissue; or sacculation of the exudation takes place, in which an indurated and thickened covering is formed, inside which the exuded matter may remain for years.

A malignant after-result of inflammation is gangrene, causing the gradual death of the inflamed organ. The causes of inflammation are very various. As I have already explained at the beginning of this article, a mechanical stimulus, such as rubbing, wounding, a blow, pressure, etc.; a thermic excitation, such as the application of water in a stimulating form; or a chemical influence, such as corrosion, burns, vapour, etc., may produce inflammation, also, an internal stimulus proceeding from the nerves or the blood, frequently "malignant bacilli," or "pathogenic bacteria," that convey any contagion to the system, may be the causes of the formation of an inflammatory process.

Very often inflammation arises in the skin, in one of the glands of the skin, without any recognisable cause, the fact being that the organism is attempting in this way to rid itself of some foreign matter or of some irritating stimulus.

Diseases that are based upon faulty composition of the blood, as tuberculosis, syphilis, cancer, gout, etc., are frequently followed by inflammatory processes, and then, as a rule, become chronic, because the irritating matter is continually renewed in the blood. I will here recapitulate, on account of its great importance, the chief stages in the inflammatory process. Irritation, hyperæmia (or excess of blood), disorganised circulation, exudation, dispersion and absorption of the exudation, or the formation of fibrinous masses with coalescence or growing together, or the transformation of the inflammation to a suppuration, with a favourable termination, or sometimes with serious consequences. The general symptoms in the case of inflammation are, as a rule, shivering fits, depression, weariness, loss of appetite, and a greater or less extent of fever.

The treatment of inflammation, when it arises as an accompanying symptom to some other disease, corresponds with the nature of the primary disease. Local independent inflammation is removed by damp fomentations, very little or not at all wrung out compresses or packs, in which great care has to be taken that the water used for the application is proportionately high in temperature to the degree of violence of the inflammatory process. (See p. 443.)

Inflammation by Cold. (See "Frostbites.")

Inflammation of the Glands. (See "Mumps.")

Inflammation of the Navel requires for its cure an anti-inflammatory treatment, consisting in continuous application of compresses at $81\cdot5^{\circ}$ F., made from fine, soft, not too thick, linen, frequent rinsing and purifying of the navel with moist, pure, medicated lint, as well as, in the case of fever, two or three daily half-baths at $92\cdot75^{\circ}$ to 95° F. Further important curative factors are pure air and natural nourishment for the child.

Inflammation of the Prostate.—An acute inflammation of the prostate is a disorder that often sets in during the course of gonorrhœa (comp. the article on "Gonorrhœa"), and of which the symptoms are violent burning pains in the region of the perinæum, that often become almost unbearable when the patient goes to stool. The pains are greatly

augmented when there is constipation or a retention of the urine present. Water can only be passed with great pain, and in many serious cases it is necessary to empty the bladder of its contents, by means of a catheter. The region of the perinæum is generally inflamed, swollen, sore, hot, and very sensitive when touched. The disorder generally runs its course favourably, that is to say, without any complication, and with proper treatment an absorption of the pathological products takes place. It sometimes, but rarely, happens that virulent pus collects in the prostate, which forces its way through the perinæum, urinary passages, and rectum.

The treatment should consist of the use of vapour sitz baths, stool baths, vapour compresses, also of vapour trunk baths (95° to 104° F.), or sitz baths and emollient enemas (having a temperature of 77° to 81° F.), to be followed by small cold enemas of 68° F. During the interval between one bath and the next, one should apply exciting compresses, of from 73° to 77° F., to the region of the perinæum, and these compresses should be followed by extra compresses, of from 77° to 81° F. Should a collection of pus take place in the prostate, follow the treatment given in the articles "Abscesses" and "Wounds." In this disorder it is absolutely necessary to rest in bed, and the diet should be a cooling, vegetarian, and somewhat mucilaginous one. (Comp. also I. Chap. 38, "The Care of the Sick.")

Inflammation of the Testicles. (See "Gonorrhœa.")

Inflection of the Womb. (See "Women, diseases of.")

Influenza, Catarrh.—Influenza is an infectious disease, which sometimes breaks out in an epidemic, and is accompanied by catarrhal affections in the organs of respiration, or stomach and bowels. Nothing further is known of the peculiar infectious matter, which, doubtless, is miasmatic, and hovers in the air; or of the manner of its propagation, extension, or incorporation in the human body. One thing, only is certain, viz., that the disease—as all infectious diseases—only seizes those whose bodies are stored with self- or foreign poisoning matter, and therefore susceptible to infection. The outbreak of the disease takes place very suddenly, without its being able to be shown that the incubation stage is referable to any subjective appearance. The introductory stage is in most cases wanting, and these characteristics have procured for it the name of lightning catarrh. After attacks of more or less severe cold-shivering,

fever of different degrees, accompanied by violent headache, which extends from the forehead to the lower part of the back of the head, sets in.

Along with this, according to the individual constitution, and the intensity of the attack, as affecting head, breast, or stomach more or less, the following accompaniments are noticed: Feebleness, lassitude, a feeling of weakness in every limb, hip pains, distaste for everything, dry, hacking cough, hoarseness, slimy matter and blood-streaked excretions, difficulties of respiration, sore sensation under the breast-bone, constipation or diarrhœa, insipid clogging taste, loss of appetite, eructations, vomiting, stomach pressure, flatulency, etc. In the more serious cases it amounts to a state of the utmost anxiety and excitement, convulsions, delirium, and even self-destruction. Should there be no complete recovery, the disease becomes complicated, especially in the direction of inflammation of the lungs, leading on to consumption. Should influenza end in death, it is generally through acute inflammatory lung affections, and people with weakened force of resistance, lung, heart, or spinal diseases, may, under "scientific" drug treatment, succumb to death. The treatment must be studied with regard to the degree of the fever. When this is slight, a damp, bed vapour bath (Nos. 2 or 3), together with sponging of the entire body at 77° to 81° F., or a half-bath at 83° to 88° F., continued for five minutes, or a whole bath at 81° to 85° F., of the same duration, should be given. Or, instead of the bed vapour bath, a cane-chair bath, a cone vapour bath, or a steam appliance, may be preferably used as circumstances permit. With the steam baths the following refreshments should be given, once or twice a day: Oatmeal gruel, stewed apples, etc., and in the interval stimulating body and calf packs, at 77° to 81° F., applied. The throat should be gargled with tepid water, to which either lemon juice or other fruit-juice has been added. When the fever temperature is higher, the fever treatment indicated in Part II. Section VI. is essential. The prescriptions so far given will, in most cases, be sufficient; but it may be interesting to the reader to learn also the treatment that some of the chief medical authorities prescribe for the already universal disease of Influenza.

In the first place, the Nestor and practical exponent of the Natural Curative Treatment, Hermann Canitz, recommends, as a preventive measure, the gargling of the throat three

times daily with gargle at 72° F., always to the amount of half-a-pint, then rinsing the nose with water at 81° F., and drinking of from three to five mouthfuls of cold water. After this, rubbing, massage of the lower jaw, extending to the temples and forehead, must be begun, and every manipulation carried out thirty times in succession. Along with this the whole body should be sponged down in the morning with water at 72° to 76° F., and again in the evening a stimulating complete wash, at from 72° to 74° F., should be taken; while in the case of cold feet, a foot vapour bath, by means of hot water bottles, coupled with washing the steamed parts with water at 72° F., should be substituted, and the stomach massaged (Fig. 157).

When the disease has broken out, the prescription is as follows: Gargle the throat every two hours with water at 72° F., then rinse the nose with water at the same temperature, drink from three to five mouthfuls of cold water, and rub the lower jaw, and well over the ears, extending upwards to the temple and forehead. Every second hour during the day take a stimulating sponge all over at 72° F., stimulating leg packs at the same temperature, and apply steam compresses to the breast, changing them every quarter of an hour. Cold feet require a hot water bottle steam vapour bath. After taking off the packings, follow up with a complete wash at 72° to 81° F., or a half-bath at 84° to 89° F., lasting from three to five minutes, and, in the latter case, pouring cold water at 68° to 70° F. over the upper part of the body, excepting the head. Continue the stomach massage once or twice a day (p. 679), and on awakening in the morning take a complete wash at 72° to 81° F., with massage of the lower jaw, while in the evening a stimulating neck and leg pack should be applied.

In this somewhat troublesome manner Canitz treated some hundreds of patients. Inflammation of the lungs did not occur in these cases, due no doubt to the care taken to always have a good supper of fresh air and an absolutely non-stimulating diet, consisting of soups, stewed fruit, dry vegetables, milk, water and fruit-juices.

Father Kneipp held that influenza was the same as "La Grippe," and cured it perfectly by his own treatment in eighteen hours. He sent the patient to bed, where neck, breast and back were rapidly washed over with cold water; the neck was bound up with a dry linen cloth, and the body

covered with warm but light blankets. This process was repeated every hour, and the washing strictly completed within ten seconds. The patient was not dried, and in a short time was perspiring as freely as if lying in bed in a bath. The prompt sweating crisis decided the disease.

For the inward treatment, a spoonful of fresh water was administered every hour.

Louis Kuhne's method was prompt and successful in curing influenza. It took the form of sweating by his special room vapour bath apparatus, together with successive body baths or friction sitz baths.

Dr. Lahmann recommended his patients, when their constitution and temperature permitted, to take sweating baths.

If the sweating process was successful, and the patient's face bedewed with perspiration for ten minutes, he was then given either a full bath at 90° F., that within from four to five minutes was cooled down to 79° F.; or he received a wet patting at 77° F., which, after a few minutes, was twice repeated with water at 72° F. The patient was then obliged either to betake himself to bed undried, or put on his clothes in this condition in order to become dry. If after a few hours the patient in consequence of the treatment grew worse, his body, in accordance with the treatment, was purged until all foreign matter was eliminated, and body and calf packs applied for promoting and carrying it off. For the removal of headache, soothing compresses were applied to the head and stimulating bandages to the neck.

Professor Winternitz, the celebrated hydropath in Vienna, pupil of the late Dr. Schindler, of Gräfenberg, was, during an influenza epidemic in the middle of winter, seized one day in the street by feverish chill, the constant forerunner of the disease. He wrapped himself up warmly in his fur, strove with all his will to overcome fatigue, and walked at the briskest of paces through the streets of Vienna until he perspired. Arrived at his house, he rubbed himself dry with a cloth, put on woollen underclothing, and sat down to dinner with an excellent appetite free from all fever, headache, and fatigue. That was, of course, the simplest way to remove incipient disease; and in many cases, similar sweating in Russian steam, in Roman-Irish baths, or even in bed, has completely put an end to all trace of it.

Injuries induced by Occupations. (See "Trade Diseases.")

Insomnia.—Owing to the worries of business, and the struggle for existence which nowadays requires the exercise of every faculty, the action of the nerves is greatly called upon, and by sleep the exhausted sensitiveness is either increased or re-established. The normal alternation of waking and sleeping indicates health; sleep is a criterion of the well-being of every individual. Unfortunately the strength gained by a healthy man in sleep is denied to thousands of sufferers, for sleeplessness is a symptom in most pathological conditions. It may be divided into two sorts — the temporary, occasioned by incidental causes, and the lasting, chronic, constitutional. Temporary insomnia may be occasioned by unusual impressions, fright, fear, etc.; violent emotion; exciting literature, especially at night, just before sleeping; too rich and too late suppers; excessive indulgence in intoxicants and stimulants (coffee and tea), excessive bodily and mental exertion, great heat in the summer, glaring light (moonlight), abnormal bedding (beds), painful disorders, or such conditions as are accompanied by itching or palpitation, inflammatory and feverish illnesses, etc. A fever patient does not sleep at all, or his sleep is not refreshing. In serious illnesses, the first deep and strengthening sleep is rightly regarded as a favourable symptom of convalescence. Troubles of the digestive organs, or an unsatisfied longing for food, are generally the cause of sleeplessness in childhood. If either of these causes is suspended, nature once more claims her right, and sleep is restored. It is quite a different matter as regards chronic insomnia, which is one of the worst ills that befall mankind, and may lead to desperation. The chronic form always originates in an excessive disturbance of the nerves, such as nervous irritation; it is a premonitory symptom of neurosis, and is not infrequently the herald of mental derangement. Chronic insomnia occasions general debility, bodily and mental relaxation, bad temper, listlessness, loss of appetite, headache, depression, suicide, etc.

Aged people often suffer from insomnia; but in this case we are safe in speaking of normal sleeplessness, as it is well known that the need of sleep in old age is less than in earlier years.

The treatment of chronic insomnia must be specially directed to the removal of the exciting cause. In cases where the recognition or cure of this is not successful, the rules for the General Strengthening Treatment may

be followed; the Chapter headed "How must we Sleep" (I., 12) should be studied, and the instructions carried out under "General Health Rules" (I., 22, p. 238, etc.) If a rush of blood to the head occasions the sleeplessness, follow carefully the advice given under "Flow of Blood to the Brain." Most important among these are the nightly stimulating packs for neck, body and calves, soothing, full and hip baths, foot vapour baths, enemas, and walking barefoot. Cold feet, which prevent sleep, should be warmed by hot water bottles, wrapped in damp covers. Soothing massage of the neck is very efficacious. But, above everything, the sufferer must adopt a low diet; an exclusively vegetarian dietary is best. The patient cannot be sufficiently warned against the use of drugs that send him to sleep artificially (p. 238). These narcotic remedies are a deception and a sure poison. Let the bedroom be cool, the air pure (windows open), and the bed not too warm. If you must read, either before retiring or in bed, choose something dull, such works as "Solution of the Social Problem," whose writers do not know themselves what they want. Such writings of an amusing order often produce sleep in an astonishingly short time. Even if they effect no particularly practical changes, yet, as somnolents, they are invaluable.

Intestinal Cancer. (See "Intestine, Cancer of the.")

Intestinal Hernia. (See "Rupture.")

Intestinal Tube, Twisting of the, represents a condition in which either the part of the intestinal tube referred to, or an intestinal loop, is turned with the mesentery that belongs to it on its own axis, or when one or more intestinal loops have become entangled, so that, in consequence of this entanglement, the whole intestinal tube becomes closed up. The ileum and the S.-shaped curve of the colon are particularly frequent sites of this disease. It sometimes happens that, that portion of the intestines becomes folded into the hollow of the neighbouring portion, then arises intussusception or invagination, a folding-in of the intestine, and here also there arises a complete collapse of the intestine. The subjective symptoms of twisting of the intestine and of intussusception are the same, and are described under "Occlusion."

For the removal of simple narrowing of the intestine, the patient must, before all things, be kept to a strict diet. He must avoid partaking of all kinds of food which irritate or stimulate the intestine, or which leave behind them much

waste product. He must, therefore, avoid partaking of bran or wholemeal bread, and must keep to pappy or mucilaginous foods, green vegetables, salad, fruit, milk puddings, etc. He should take daily three trunk baths, at from 82° to 86° F., of a duration of from ten to fifteen minutes; laxative enemas, at 77° F., weekly, two or three night stool vapour baths, and at night a stimulating abdominal fomentation at from 73° to 77° F. For the rest let the General Strengthening or Tonic Treatment be adopted.

The treatment of a closure of the intestine (when one suspects an intussusception, or a twisting, or a knotted intestine) must, on the whole, be similar to that for rupture (hernia) when strangulation has taken place. In addition to this apply a sitz vapour bath at 85° F., gradually raised in heat up to 104° to 106° F.; and after this a laxative enema at from 90° to 92° F. with a quantity of water of from five to eight pints. During the application of the enema softly massage the abdomen, and choose for this purpose Hand Grasp No. 2. The abdominal walls of the patient must during the procedure of massage, however, be relaxed. All these proceedings may be gone through three or four times a day in the course of the first days; in the intervals the abdomen should be covered with thick stimulating compresses at from 77° to 82° F., which, on becoming warm, must be immediately renewed. If there is no inflammatory condition, then one may apply vapour compresses, changed every five or ten minutes, perhaps six or eight one after the other; and then again for many hours lay on stimulating compresses. When it is, however, chiefly a matter of removing a mass of excrement from the rectum, which, in the case of women, may be readily felt on examination by introducing the middle finger well oiled into the vagina, when the stoppage of excrement presents a hard swelling; then one should by means of the irrigator introduce as much water as possible, at from 93° to 95° F., into the intestine, in order to soften the accumulation. Hard portions of excrement, which may perhaps lie at the entry of the anus, and which may hinder the introduction of the mouthpiece of the irrigator, should be carefully removed by the introduction into the rectum of a well-oiled finger. The enemas should be repeated as often as is necessary, until a result is obtained in the shape of satisfactory evacuation of the bowels. After every laxative enema administer a small cold one at from 63° to 68° F.

For the rest observe the previously-given rules of cure, to be found in connection with closure of the intestine. When the stoppage has been satisfactorily removed, apply treatment calculated to counteract the primary disease, which had as its result the accumulation of excremental matter in the rectum. (See more on this subject, under "Costiveness," etc., in the Index.)

Intestinal Ulcers. (See "Ulcers.")

Intestinal Worms. (See "Worms.")

Intestine. (See "Digestion, Organs of.")

Intestine, Cancer of the.—Intestinal cancer is more frequent among men after the fortieth year of life than it is among women, and attacks, by preference, those parts of the colon that are curved, as well as the rectum. More rarely it appears in the small intestine and in the duodenum.

The symptoms are shown by a general roundish proliferation of the diseased wall of the intestine, from which a narrowing or stricture of the intestinal canal results, and from which a burning pain spreads periodically in all directions. The stricture or narrowing of the intestinal canal then leads to an accumulation of gases and excrement, above its site, as a result of which the intestinal canal is stretched wider in its upper portion, and below the stricture, is shrivelled together. Constipation, continual sickness, vomiting, disturbance of the digestion, general decline, and so forth, are the universal consequent symptoms of cancer in the stomach.

Cancer of the rectum is characterised by a hard, uneven, and sometimes ring-shaped swelling not far from the anus, which can be felt by the finger. In consequence of its gradual coalescence and growing together with the surrounding parts, this swelling at last renders any displacement or movement of the rectum impossible. Difficulties in defæcation, in the form of constipation alternating with diarrhœa, slimy or bloody evacuations, represent the further symptoms. The anus is, as a rule, widely opened, and filled with knotted veins. If the tumour breaks, then an obstinate, putrid, slimy, discoloured, evil-smelling diarrhœa generally sets in, which, from the irritated and corrosive composition of the motions, causes violent inflammation of the anus.

Cancer of the colon is recognised by a tumour in the neighbourhood of the left iliac spine, or under the border of the ribs, which often changes both its form and its position,

sloughing away or disappearing on the evacuation of the previously-filled intestine, or sinking down by reason of its own weight. It is, however, often possible to make an error in diagnosis by mistaking a mass of excrement for a tumour. Obstinate constipation, evacuation of a lumpy excrement, dull pains in the abdomen, emaciation, weakness, and, finally, general cachexia, completes the sad picture of the disease.

Cancer of the small intestine has in its symptoms very much similarity to cancer of the pylorus, especially when the duodenum forms the seat of the tumour. (See on this subject, under the heading "Stomach, Cancer of the.")

The disease of intestinal cancer may be of two or three years' duration. The foundation of a local treatment may be formed by an application of vapour compresses, or sitz vapour baths, for the alleviation of the pains and the dispersion of the tumour. An application of stimulating abdominal fomentations at from 77° to 82° F., of enemas at 82° F., for the relief of the constipation, in combination with subsequent small cold enemas at 72° F., although cure is only of very rare and exceptional occurrence. At the same time the rules of the General Strengthening or Tonic Treatment are to be adopted, for the conversion of the whole fluid contents of the body. Only a purely vegetarian diet is, in this case, as in that of every other cancerous disease, permissible.

Intestine, Catarrh of the: Acute. — Like all other organs which are lined with the mucous membrane, the intestinal tube is sometimes the seat of catarrh. Acute catarrh, which also attacks the mucous membrane of the intestine, is sometimes an independent disease, sometimes an accompanying symptom or one of the sequelæ (or after-results) of other diseases. The independent form is brought about by mistakes in dietary, through over-eating, which not only injures the stomach but also the intestines; by partaking of too hot or highly-spiced or highly-salted dishes; by partaking of bad food, or of food that has become decomposed; by eating unripe fruit, by drinking bad or ice cold drinking water, by taking chills (long standing or sitting on cold floors or on cold stones), getting wet through, through the internal use of medicines (castor oil, tape worm remedies, and so forth), or through the internal use of poisons, through mental excitement (fear, excited terror etc.). When it is a result following upon some other disease, it is brought about by feverish infectious diseases, through inflammation of the organs that are in the

neighbourhood of the intestine, and through a general condition of debility, etc.

The symptoms are shown in abundant fluid evacuations of the bowels of various colours (light yellow, brownish blood-stained grey, or like gruel), and of faint putrid odour; in violent pains, rumbling sounds in the bowels, and by tenesmus (straining), which depends upon the catarrhal affection of the rectum, and which, even on the evacuation of small quantities of fæces, produce burning, cutting pains in the anus. The appetite is, as a rule, weak, whilst the thirst, on the other hand, is increased, and the amount of urine passed is always diminished. The urine generally shows, after long-standing, a reddish deposit. Fever is seldom present in cases of independent catarrh.

These symptoms specially characterise a catarrh whose seat is in the colon. If the colon, which is connected with the cæcum (see below), begins to be attacked by catarrh, then the patient feels violent pains in the region of the navel, burning at the anus, and pressure to evacuate. When evacuation takes place under circumstances of straining and pressing, then, as a rule, glossy mucus mixed with blood is evacuated. In cases of catarrh of the duodenum (the uppermost portion of the small intestine), there is, in addition to other symptoms, very often vomiting, since the walls of the stomach are also affected. In like manner an accompanying symptom often observed is jaundice, in consequence of the stoppage of the bile ducts through the swollen condition of the mucous membrane of the duodenum; if the second portion of the small intestine (the jejunum), and its third portion, the ileum, are affected by catarrh, then there arises with the vomiting, evacuations of greenish yellow, of flaky appearance. Catarrh of the ileum especially arises in cases of typhoid and of consumption of the bowels. Catarrh of the cæcum and of the vermiform process often arise as an independent disease. In consequence of the great importance of this disease, I will deal specially with this form of catarrh of the intestine at the end of this article.

If the rectum alone is the seat of the disease, then the catarrh is characterised by violent tenesmus (straining), as well as by cutting pains in the left iliac fossa, which goes over to the anus when the bowels are emptied. The excrement is indeed firm, but at the same time bloody, and like mucus. A neglected case of catarrh of the rectum may lead

to paralysis of the muscles that close the anus, a prolapse of the anus, and the formation of rectal fistulas.

Acute catarrh of the intestines vanishes under suitable behaviour, as a rule after from one to two days. It may, however, where the conduct is not proper for its cure, last over two weeks. Cure announces itself through the motions becoming firmer and diminishing in frequency and the pains leaving off, and then constipation often sets in.

Treatment should, in the first place, consist of a suitable dietary. The patient should have, for the most part, a fluid and mucilaginous food, oatmeal gruel, groats, barley and sago pap, rice, and so forth, then stale wheaten bread, lemonade made from fresh lemons, or raspberry lemonade. He must avoid raw or cooked fruit, wheaten bran bread, and generally all kinds of food which tend to open the bowels. As hydro-pathic applications, laxative enemata at 82° F., in combination with subsequent small cold enemata at 66° F., are to be recommended.

The patient should, also in the course of the day, take several trunk baths at a temperature of 86° F., and of a duration of from seven to ten minutes, as well as, when reclining in bed, in the intervals, have stimulating compresses on the abdomen at a temperature of from 77° to 82° F., changed about every two hours.

Patients who are naturally weaker, or who, in consequence of the diarrhœa, have already become very exhausted, should have vapour compresses applied every ten to fifteen minutes to the abdomen, and should take a sitz bath at a temperature of 106° F. At the same time one must always be cautious in the application of damp warmth. One should make use of it especially in cases where the aim is to produce evacuation of the bowels as soon as possible. As for instance, in order to get bad food that has been eaten rapidly out of the system, the application of massage, in the form of shaking of the stomach and of the transverse colon, is often in these cases of excellent effect. In the case of catarrh of the rectum, give the patient sitz vapour baths, or Kneipp's night stool vapour baths, sitz baths at 90° F., or one should apply vapour compresses.

Little children who are suffering from catarrh of the intestine should be given a complete bath at from 88° to 90° F., of a duration of from two to three minutes, and then be rubbed quite dry, and given afterwards a

stimulating trunk pack at from 73° to 77° F. Never omit at the beginning to give a trunk pack, and to put a compress, at a temperature of from 68° to 73° F., upon the head, but to remove this again soon, and then to dry the head. Also oatmeal pap, in the form of enemas at 77° F., may be given to little children in case they are becoming emaciated and refuse to take nourishment.

The cæcum, the initial portion of the large intestine, which lies in the right iliac fossa, and which again extends into the ascending colon, together with this often is the seat of a violent disease, an inflammation of the colon, the cæcum, and the vermiform process. Between the cæcum and the small intestine lies a kind of flap or trap door, which prevents the return of the fæces into the latter. At the lower end of the cæcum is found the so-called vermiform process. (Fig. 1, p.) The cæcum then has to fulfil the task of digesting the remains of the food which have withstood the digestive working of the stomach and of the small intestine. Not until they reach the other side of the cæcum do the food materials that have failed to be assimilated take on an appearance and smell of excremental matter. Through the stopping up of the cæcum and the vermiform process with accumulated excrement, inflammation is very often set up in these two portions of the intestine. Also cherry stones and plum stones that have been swallowed, or small pieces of bone or tuberculous degeneration of the wall of the intestine, etc., may cause inflammation of the cæcum.

Among the symptoms from which the patient suffers when he is affected with catarrh of the intestine, is sometimes by more or less violent abdominal pain. One that occurs some little time earlier is constipation alternating with diarrhœa. Soon there are joined to these, loss of appetite, feeling of sickness, inclination to vomit, breaking up of wind, and dull pains in the right iliac fossa. The pains increase sometimes to such an extent that the patients cannot bear the slightest possible pressure upon the painful spot, and the slightest bodily movement is avoided by them with great dread. Generally they lie in bed on the right side, bent over forwards with the right thigh drawn up on the belly, and exhibit an expression of countenance full of fear and pain. Fever to the extent of 104° F., small, rapid, hard pulse, restless sleep, violent thirst, diminution of the secretion of urine, constipation alternating with diarrhœa, the evacuation of mucus

with the excrement, vomiting masses that have the appearance and smell, etc., of excrement, complete the picture of the disease. The accumulation of excrement in the cæcum and in the vermiform process, is sometimes recognisable to the eye, since the right lower abdominal region shows a swelling that follows the course and the outline of this portion of the intestine as also of the colon. In cases where only the vermiform process is inflamed, the swelling is usually smaller, or may sometimes be altogether absent. Frequently the inflammation breaks through this portion of the intestine, which, as is well known, forms a cul-de-sac, and then peritonitis arises (inflammation of the peritoneum). The duration of the cæcum is, when it runs a favourable course, as a rule, inflammation of from one to two weeks.

The treatment must be both local, for the alleviation of the pains, the moderation of the inflammation, and the relief of the constipation, that is to say, the getting rid of the accumulated masses of excrement; and must also be directed to a lowering of the fever temperature. Locally one should apply laxative enemas of a temperature at from 77° to 82° F., in combination with subsequent small cold enemas at from 64° to 68° F., as well as antiphlogistic cool fomentations on the abdomen at from 73° to 77° F., alternating with stimulating ones (antiphlogistic, as before explained, means calculated to counteract or allay inflammation). When the fomentations get hot (they are to be from four to six-fold compresses), they must be immediately renewed; also two to three trunk baths at from 86° to 88° F. per day, and of a duration of from ten to twelve minutes each, or sitz baths at from 88° to 90° F., washings of the whole body with water at a temperature of from 77° to 82° F., stimulating packs for the calves at from 68° to 72° F., often contribute considerably to the alleviation of the pains, as also to the diminution of the fever. When one has to deal with a simultaneous inflammation of the surrounding cellular tissues, the connective tissue of the pelvis, or of the kidneys and rectum, and so forth, are also attacked by inflammation, or if suppression sets in so that a suppurative focus is formed, then, in addition to the above treatment, should apply vapour compresses to the lower abdominal region for ten or fifteen minutes, six or eight times one after the other.

Intestine, Catarrh of the: Chronic. — Chronic catarrh of the intestine results either from a neglected case

of the acute form of the disease, or it is a condition arising as an after-consequence of diseases of the liver, lungs, or heart, or from ague, etc., which diseases keep up a continual congestion of the intestinal tube. The symptoms are as follows: Constipation, alternating with diarrhœa; the passing of mucus with the excrement, rumbling sounds in the abdomen, the breaking up and also downward of wind, and palpitation of the heart, congestion of the head, dull weariness, feeling of fatigue, emaciation, cold feet and hands, great liability to chill, shivering fits, sad and oppressed spirits (hypochondria, etc.) The malady may last for many months or for years, or may even continue throughout the rest of the patient's life.

The treatment must, in the first place, be directed to the removal of the primary disease. Then one should adopt the General Strengthening or Tonic Treatment, in which a prominent place is given to mild trunk baths at from 84° to 88° F., night stool vapour baths, or sitz vapour baths Nos. 2 or 3, massage of the abdomen, general massage of the body and Cycle of Movements No. 4 in the Simple Active Movements of the Hygienic or Curative Gymnastics.

Intestine, Tuberculosis of the. (See "Tuberculosis.")

Intestine, Twisting of the (Volvulus); Narrowing or Stricture of the Intestine; Stoppage of the Bowels. — The most various and dissimilar causes may lead to obstruction or occlusion of the intestinal tube. Cicatrisation, or healing over of ulcerations of the intestines, knicking or partial fracture of the intestinal tube, the presence of foreign bodies of great size, large masses of accumulated excrement, gall stones, etc., generally bring about narrowing or obstruction of the intestines, which is shown by obstinate constipation of the bowels, swollen condition of the abdomen, periodical colic pains, and the motions taking an appearance of being pressed flat or tape-shaped. The closing of the intestinal tube is a condition most dangerous to life, and in the majority of cases arises through a strangulation of a portion of the intestine in the orifice of a rupture. (See art. "Rupture.") It may develop either gradually or quite suddenly out of a narrowing of the intestine that has lasted for some time. Occlusion of the intestine is one of the most terrible and agonising and serious complaints known to humanity. Complete stoppage of evacuation

of the bowels, vomiting, and, in the later stage of the disease, the vomit of excrement; pains in the abdomen, swollen condition of the abdomen, diminished or entirely wanting secretion of urine, horrible feelings of fear, wasting of the features, weak voice, a lowered or slightly raised temperature of the body, obstructive breathing, small or hardly perceptible pulse, cold hands and feet, etc., give a true picture of this disease, which has already been partly portrayed in the description of the complex of symptoms of cholera given on p. 922. Death generally follows after one or two days. The condition above described very rarely lasts as long as a week or more. If, however, cure sets in, then the vomiting ceases, movement of the bowels returns, and the letting off of wind. In the evacuations there are then often hardened, almost stone-like, masses of excrement. In the case of people who suffer from chronic constipation, especially in the case of matrons and chlorotic young girls, stoppage of the intestine is not at all uncommon, since stone-hard masses of excrement collect and get set fast in the rectum.

Iris, Spots on. (See "Tetter," p. 1410.)

Irish Baths. (See "Roman-Irish Baths," in Index.)

Iritis. (See "Eye Diseases," p. 1022.)

Itch (Scabies).—Itch is an inflammatory disease of the skin, caused by an animal parasite, the female acarus, or itch spider (Fig. 378). The disease is characterised by the formation of little blisters, knots and pustules on the skin. This diseased condition is only partly effected by the operation of the acarus, a good deal of it is produced by scratching with the finger nail. So much may be said of the natural history of this parasite, that, when viewed through the microscope, the female is of tortoise-like build and somewhat larger than the male. At the foremost end of the surface of the back, in both sexes, is the head, on which stands a pair of gills, separated from each other by a cleft. The double feet of the female are articulate and grasping, the hinder pair having long bristles, while, in the case of the male, all four feet are sheathed. The stomach and bowel passage (Fig. 378) of the female is very prominent, and in the breeders the eggs can distinctly be recognised lying in the ovarian receptacles. The female organs and alimentary canal are found in the lower part of the stomach of the female, while in the male the organ is found in the under surface.

The impregnation of the female takes place by the male seeking her in the skin channels. The female, after impregnation, bores into the skin to the depth of an eighth part of an inch, and during the burrowing lays one egg after the other on her way, to the number of ten to forty. The mother, not being able to return, through the eggs blocking the passage, dies.

In from ten to fourteen days the eggs ripen, their shells are broken, and the larvæ of the acarus slip out and form a way for themselves through the mother to the epidermis. Here they bury themselves, awaiting further development, which consists of two to four growths of skin. After the last skin formation the acarus is ripe. The male acarus is less numerous and much smaller than the female, and is found in the depth of the epidermis.

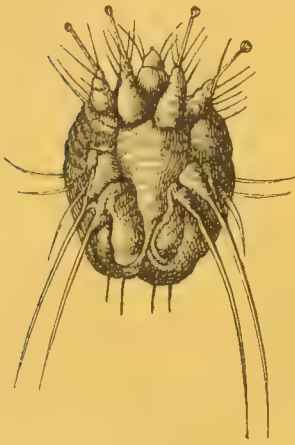


Fig. 378. Female Acarus
(Itch Spider).

(Under surface, greatly magnified.)

The treatment must be exclusively directed at the extinction of the acarus and the destruction of the eggs. It must, therefore, be purely local. Green soap must be thoroughly rubbed into the whole affected surface. Next a warm full bath, at 98° to 104° F., should be taken, in order to soften and open the passages made by the acarus. Green soap must be thoroughly rubbed into the affected skin, and

anointing the part so treated with olive oil for from three-quarters to an hour is recommended, in order to avoid inflammation in the drying up of the soap. Then take a freshly-prepared full bath, at 98° to 104° F., dry by dabbing with a dry handkerchief, and dress in fresh under-linen. The bed linen must also be changed. These measures must be prepared and executed in the same manner for three or four consecutive days, when the parasite will certainly be exterminated. After the emollient treatment, for about half-a-week, tepid full baths should be taken in order to completely remove any remaining skin irritation.

J.

Jäger, System, Dr. Gustav. (See "Sanitary Wool Treatment.")

Jaundice. (See "Liver, Diseases of the.")

Jaundice, Acute. (See "Liver, Diseases of the.")

Jaundice, Infantile. (See "Liver, Diseases of the.")

Joints, Cartilaginous Formations (Abnormal) in the.—These are found, as a rule, on the articular surfaces, either attached, loose, or grown together. The treatment is the same as for stiffness of the joints. (See "Joints, Inflammation of.")

Joints, Inflammation of the; Dropsy of the Joints.—Inflammation of the joints may be set up by external causes, such as a fall, a blow, a dislocation, or a sprain, or in consequence of illnesses originating in defective blending of the juices. We must distinguish between inflammation of the joints, accompanied by a discharge of serous fluid—the so-called dropsical joints—and that complicated by suppuration. The symptoms of the former, which may be acute or chronic, are as follows: Tender, fluctuating swellings of the affected joint, loss of power owing to unbearable pain, sensitiveness to pressure, red, inflamed hot skin all round, and, further, more or less fever. The knee is specially liable to inflammation, discharging either serous or purulent matter. These symptoms either diminish after a time, and the moisture dries up, or chronic dropsy of the joints ensues, in which case the moisture only partially dries, the knee-cap thickens and the ligaments stiffen. An unusual mobility of the joint often accompanies this condition. Intermittent dropsy of the joints, in which there are acute attacks every two to five weeks, lasting three to six days, and unaccompanied by fever, should be borne in mind.

The treatment of chronic dropsy in the joints, as regards local application for furthering the drying up of the discharges, must be stimulant, and the smaller joint (of course in a comfortable position) must be wrapped, together with the surrounding parts, in 68° to 72° F. stimulating compresses, which must be renewed as soon as they get hot. Take baths, 86° to 90° F., for the arm, leg, or elbow, several times a day, and vapour baths, 80° to 86° F., and ablutions afterwards, and make use of centripetal extended massage. (Part II.). Take two to three bed vapour baths (No. 1—4), or chair

vapour baths. Massage of the whole body twice or three times a week will also conduce to a favourable result.

The diet should be solid, as detailed in the before-and-after-treatment of "Schroth's Method." In obstinate cases this course can be modified or carried out to the letter. Acute dropsy accompanied with fever requires The Fever Treatment, and also the local applications as above.

Suppurating inflammation of the joints may, even though seldom the case, result from acute dropsical joints, or, as is generally the case, be independently set up. The causes are violent external injuries, as wounds or fracture of bones forming the joint, tearing of the ligaments, introduction of a foreign substance (shot, etc.) into the joint, inflammation in the region of the joint, where the matter penetrating the patella takes up its position in the cavity; also from air forcing itself through a wound disorders of blood and humours, or pyæmia, in consequence of the matter being carried by the blood to the joints, and there congesting in the form of an abscess. The symptoms are as follows: Sharp, boring, gnawing, throbbing pains, red inflamed swellings of the joint, more or less fever, etc. A stiffness often remains, as well as other changes in the joint thus affected.

The treatment should be local and anti-inflammatory. Soothing, thick compresses, 77° to 81° F., should be applied around the joint, alternated with steam compresses, or it can be sprinkled with the Malten vapour douche; take tepid baths, 82° to 86° F., or vapour baths, and apply stimulating bandages, 68° to 72° F., should there be any opening. (As regards the local treatment, see remarks on p. 512, 513.) Use also massage, gentle stroking and rubbing towards the centre of the apparently healthy parts of the limb. The symptoms are set forth under "Blood Poisoning" and "Abscess." I consider it necessary once more to warn you against the application of ice.

For the stiffness left by wrong treatment, apply local stimulating packs, 64° to 68° F., alternately with vapour baths, or with laying on damp compresses, together with massage (Fig. 163), and by increased flexibility of the joint, the passive movements of Curative Gymnastics, as shown in Figs. 206 and 207, which can also be carried on if the elbow has contracted stiffness. For stiffness of ankle or wrist, those shown in Figs. 211 to 214 will be found useful. After this the preventive, simple movements of the active course may be used.

Joints, Pains in the. (See "Rheumatism.")

Joints, Rheumatism in the. (See "Rheumatism.")

Joints, Stiffness in the. (See "Joint Inflammation.")

K.

Kidneys, The.—The two kidneys, together with the urinary passages (urine ducts, ureters, bladder, and urethra), form the urinary apparatus. The former, which lie along the posterior wall of the abdomen, each beside the lumbar vertebræ, represent two glands of bean-shaped appearance (Figs. 415, 379). The length of a kidney is about three-and-a-half to four inches, its weight four-and-a-half to six ounces. Each kidney is encased in a bag of fat, in so-called kidney fat, and covered with a hard fibrous membrane called the kidney capsule. On the upper edge of each kidney is the supra-renal capsule. (Fig. 415 q). The smaller internal concave border of the kidney is called the hilus of the kidney; in it are found the entrance and exit of the blood vessels and nerves, as well as the exit of the kidney pelvis (Fig. 379 e). A kidney cut lengthwise discloses at its edge a dark, soft mass, the so-called cortical or rind substance (Fig. 379 a), which consists of innumerable convoluted urinary tubules, running internally towards the kidney hilus, a pale red mass of streaked appearance, called the medullary substance, which consists of from eight to fifteen pyramidal divisions called the pyramids (Fig 379 b). They represent spread-out urinary tubules (continuation of the winding tubules), and bear on their summits the so-called papillæ (Fig. 379 c), towards which, in the central direction of the kidney, the urinary tubules open. The papillæ, through which urine is constantly dripping from the urinary tubules, are enclosed in reservoirs, the kidney tubules (Fig. 379 d). These are again joined in

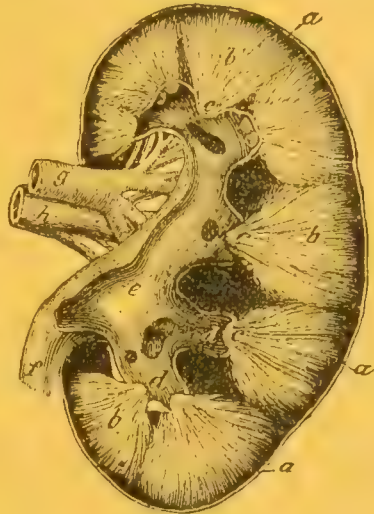


Fig. 379. A Kidney.

(Longitudinal section.)

- a. Cortical substance. b. Pyramids.
- c. Papillæ. d. Kidney tubules. e. Kidney pelvis.
- f. Ureter. g. Renal Artery. h. Renal Vein.

a kind of funnel, the kidney pelvis (Fig. 379 e), which opens into the urinary passage (ureter), (Fig. 415 t and 379 f), a canal of about sixteen to eighteen inches in length. This runs along the posterior wall of the abdominal cavity, and enters the pelvis, and passes to the base of the urinary bladder (Fig. 415 u), which is the receptacle for the constant urinary secretion.

Kidneys, Diseases of the.—The functions of the kidneys are the separating of water from the blood and freeing it from useless matter (excrementitious matter, waste tissues, etc.). Urinary secretion is therefore prepared from the blood, and when, in consequence of any disease of the kidney or derangement of its functions, this does not take place, or is imperfectly performed, the most injurious results, lasting even for a lifetime, may overtake the body. Diseases of the kidneys, which will now be treated in a series of articles, form some of the most important points in the field of pathology.

Kidney, Cancer of the.—Kidney cancer rarely occurs as a primary disease; in the majority of cases it is a secondary result, seating itself in surrounding or distant organs, as, for instance, the stomach, liver, or breast.

Kidney cancer, like others of its class, has at its commencement a cancerous blood formation, which continually discharges new cancerous matter into the organ affected.

The existence of kidney cancer can be easily distinguished from others of its kind, the unfailing symptoms being distaste for food, the failing appearance of the patient, yellowish-grey complexion, with characteristic nervous expression of countenance; loss of flesh and appetite, disinclination for exertion, costiveness, pains about the loins, the occasional voiding of blood with the urine, and a fluctuating swelling in the region of the kidneys — a diagnostic point which is of great importance — being that on the right, the ascending, and on the left, the descending colon is stretched over its anterior surface.

The duration of this disease ranges from two to two-and-a-half years, when inevitable death occurs.

The treatment for the alleviation of this complaint consists in the careful administration of the General Strengthening Treatment, as described under the heading of "Kidneys, Inflammation of the."

Kidney Capsules, Inflammation of the. — The suppurating inflammation of the fat, loose layers of binding tissue, in which the kidneys lie embedded, arises either

from wounds or diseases of the kidneys themselves, or from inflammatory affections of neighbouring organs, sometimes also from those of distant organs in the chest cavity. The symptoms are pains in the region of the kidneys, a distinctly perceptible swelling, hot to the touch, and of shining appearance, observable in an upright position of the patient's body in the region of the diseased kidney; increased thirst, loss of appetite, constipation, vomiting, fever of different degrees, etc. The duration is subject to many fluctuations, and may amount to several weeks or months. When the tumour bursts externally, it should be taken as a favourable sign. A deposition of the matter in the chest or abdominal cavity is followed by grave consequences, in the former generally by death.

The treatment is similar to that prescribed for "Kidneys, Inflammation (Acute) of the." Frequent application of vapour compresses on the inflamed part facilitates the external bursting of the tumour.

Kidneys, Congestion of the.—Congestion of the kidneys is a term applied to the obstruction of the blood within the kidney veins (Fig. 379 h). Its causes are, specially, diseases of the organs situated in the chest cavity (weakness of the heart's action, inflammation of the pleura, certain forms of lung disease, etc.). The symptoms of existing congestion consist virtually in a change in the quantity and quality of the urine. The change in quantity is considerable, amounting to about one-third or one-fourth of its normal proportion. The colour of the urine is dark; when stagnant it develops in the vessels into a hard sediment, which, under microscopic inspection, shows kidney cylinders.

The treatment must be directed to the removal of the fundamental cause. Above all, care must be taken to strengthen the heart muscles by proper technically-performed heart massage (percussion and pressure, p. 700). Application of stimulating heart compresses, at 68° to 72.5° F., should be made, and a simple, easily-digested (milk) diet made use of. Further, trunk baths at 83.75° to 88.25° F., taken two or three times a day, nightly stimulating body and calf packs, and one or two weekly whole baths, together with kidney massage (p. 700, Fig. 158), are commendable. For encouraging urinary flow, frequent use of asparagus, horseradish, parsley, etc., is extremely serviceable.

Kidneys, Contraction (Chronic) of the.—Contraction of the kidneys represents a disease which gradually

pursues the whole kidney textures, by its extraordinarily lengthy process bringing texture after texture to destruction, substituting cicatrised connective tissue. The peculiar origin of this disorder is not yet sufficiently understood.

Painful paroxysms, which, as a rule, attack both kidneys at once, are due to injurious habits of life (alcoholic abuse), chronic lead poisoning, subsequent uric acid poisoning, syphilis, intermittent fever, etc.

The symptoms are as follow: Enlargement and overgrowth of the heart, chiefly in the left cavity, which it disturbs; pulse strong, quick, and dilated; uncertain appetite, thirst, constipation, occasional nausea, catarrhal action of the breathing; skin flaccid, pallid, dry over the whole surface of the body; relaxed muscles and joints, headache, determination of blood to the head, glistening of the eyes, filmy sight, contraction of the face, temporary blindness, etc.

From diagnostic observation, it transpires that the urine, owing to the increase of unfavourable symptoms, from the enlargement of the heart and contraction of the kidneys, will be voided in much larger quantities, especially during the night. The colour of the urine is usually straw-yellow, and it contains sometimes a small quantity of albumen and froth, which remains a long time on the standing water. The microscopic examination of the urine discovers no peculiar feature, whereas ophthalmoscopic examination of the eye reveals the fact that in many instances the yellowish specks expanding on the retina and surrounding the optic nerves, are due to kidney shrinking. In other cases the vessels on the retina are dilated, while the arteries on the contrary are contracted, causing blood to issue from the vessels, and leaving a deposit of white spots.

The disease, as a rule, continues for many years.

The treatment consists in following the General Strengthening Treatment, also observing the treatment under "Kidneys, Inflammation of the, Acute."

Kidneys, Fatty or Waxy. — The disease of fatty kidneys is never self-engendered; it is always the consequence of a previous disorder, syphilis, intermittent fever, lung tubercles of long-standing, or bone and joint diseases causing great loss of lymph.

The fatty degeneration ordinarily attacks both kidneys, and also then appears in other organs, liver, spleen, intestines, etc.

The symptoms are as follow: Urine bright yellow and clear, strongly impregnated with albumen; œdematous swelling of the skin, in greater or less degree; general alimentary disturbances, etc.

It is not always an easily-understood disease. It continues for weeks, months, or years; a cure is rare. The treatment must be directed to the root of the disease. In doubtful cases the General Strengthening Treatment is adopted.

Kidney Hemorrhage. (See "Hæmaturia.")

Kidneys, Inflammation (Acute) of the; Acute Nephritis. — Acute inflammation of the kidneys is a very frequent disease. This is not to be wondered at, as the functions of the kidneys, together with the other excrementitious organs, are to eject all self- and foreign poisonous and waste matter from the blood, in the performance of which they are most liable to be irritated. Inflammation of the kidneys is, therefore, frequently the consequence of diseases arising from a faulty mixture of the blood or juices, epidemic diseases, acute infectious diseases, embolisms, etc. Colds, extensive burns of the skin, chronic state of poisoning, abuse of alcohol, inflammation of adjacent organs transplanted upon the kidneys, are all also capable of causing the disease in question. Frequently, towards the last stages in pregnancy, an acute, progressive kidney inflammation is observed. The symptoms are: Fever of different grades, in many cases initiated by cold shivering; pain, pressure, with tension in the region of the kidneys; œdematous swelling of the skin in different parts of the body, especially on the legs, the sexual region, the lower eyelids, etc.; also diminished urinary secretion; thick, bloody, brownish-red urine, with flaky sediment, bearing, when boiled, fifty per cent. of albumen.*

* Albumen in the urine is, for the most part, the surest sign of existing kidney disease. The boiling of urine in a so-called test tube is the best test for ascertaining its presence, which is manifest by the settling of a flaky mass at the bottom of the glass. It may also be distinguished by mixing fuming nitric acid with the urine, when the same flaky mass becomes apparent. Microscopic examination of urine, as well as its appearance, which may become bloody or festering by the addition of certain chemicals, decides, over and above, whether the albumen has descended from the kidneys themselves or only from the urinary canals. Albuminous sediment is found in the urine, principally in the following affections of the organism: Diseases of the kidney tissues during the course of serious feverish diseases, especially in such cases as reach a temperature

Microscopic inspection discovers red particles of blood, of cylindrical and other forms, in the urinary sediment. At the same time circulation disturbances, inflammatory affections of the thoracic organs, sometimes nose bleeding, are accompanying symptoms. The duration of the disease may extend to two or three months, but slighter cases are generally overcome in so many weeks. Indicative signs of recovery are increased urinary discharges, and gradual transformation of the dropsically swollen parts of the body into a normal state. Should, on the other hand, no cure take place, the acute inflammation assumes the chronic form; dropsy of the vital organs, such as the pericardium, lungs, or pleura, or peritoneum, takes place, each case having a short and fatal issue.

The treatment must be directed to the removal of the fundamental cause. The following prescriptions may generally be carried out: Tranquil rest in bed, and strict vegetarian diet; beef, rich-spiced meats and drinks (alcoholic and narcotic), must be without exception avoided. The use of sweet or sour, or almond milk, is highly desirable, as this species of food is least likely to irritate the kidneys. For local use, stimulating body bandages at 72.5° to 77° F., together with thick stimulating extra compresses at 68° to 72.5° F., should be applied to the region of the kidneys. These wrappings should be renewed in about twenty to thirty minutes. Together with these, two or three trunk baths at 83.75° to 88.25° F., should be taken daily, or, instead, sitz baths at 86° to 90.5° F., lasting from fifteen to twenty-five minutes. For the removal of constipation, frequent aperient enemas at 72.5° to 77° F., followed by small cold ones at 62.5° to 68° F., will have the desired effect. Should an attack of bloody urine (hæmaturia) be either threatened or set in, it is necessary to have recourse to moist heat in order to stimulate skin action. In slight cases a bed vapour bath (No. 4), or a foot vapour bath (Fig. 127); and in serious

above 104° F.; also in cachexia, anæmia, great loss of blood; in nerve, brain, and cramp affections; and, finally, in certain diseases of the lungs and heart, attended by blood congestion, within the inferior vena cava; or the internal or external use of so-called "Cure" poisoning obtained at the chemist, as salicylic acid, carbolic acid, caustic, tincture of iodine, turpentine, etc. An English physician, Dr. Bright, was the first to prove, in the year 1827, the connection between albuminous urine and diseases of the kidneys. Bright's Disease has since been the specific term for the whole family of kidney inflammatory infections.

cases, when fever does not forbid, a bed vapour bath (No. 2 or 3) should be applied. Steam application has generally a cooling effect (bathings at 77° to 81.5° F., trunk baths at 81.5° to 86° F., or half-baths at 83.75° to 88.25° F.). Should moist warmth not be agreeable to the patient, he should be bound in dry packs, after the manner described in art. on "Lung Dropsy," p. 1207. When a cure has been effected, the patient should continue the General Strengthening Treatment for a few weeks following.

Kidneys, Inflammation (Chronic) of the; Chronic Nephritis.—Chronic inflammation is, generally speaking, a self-standing disease, and rarely a development from the acute form. Its causes are not yet sufficiently well known, but its subjects are more frequently males than females. Frequent causes are, probably, damp houses, constant drenchings, colds, tedious festering processes, waste of juices, the presence of different poisonous matter in the system, drug diseases, constitutional diseases, etc. The fundamental character of the disease is pathological. The peculiar kidney tissue, or cells, which are the chief acting agents, are destroyed, in consequence of which their work, the eviction of nitrogenous matter from the tissues of the body, is left undone. The body thus loses a large quantity of albuminous matter necessary for its existence, and therefore of the utmost importance. Chronic inflammation, in its preliminary stage, presents either the complex symptoms of the acute form, or develops slowly, manifesting itself in a general sickly condition, languor, debility, indifference to surroundings, headaches, loss of appetite, etc. In further stages, dropsy of the skin and vital organs and distension of the heart ensue, both together setting the patient's life in danger. The œdematous skin swelling generally follows, beginning with the ankle-joint and lower leg, then gradually extending towards the trunk. Sometimes, though rarely, it is seen, in the initiatory stage, in the face. The urine is generally cloudy, yellowish-red, and of diminished quantity. In the more serious cases the albumen in the urine frequently amounts to from five to six drachms daily. It is also, by microscopic inspection, seen to contain different cylindrical forms, fat cells and germs in its sediment. This is the time—for an advantage must be taken when it occurs—to acknowledge the power of medical science, since one must give honour where it is due, by which chronic inflammation of the kidneys may be at once recognised when there are

neither subjective nor objective signs in evidence. A peculiar change in the appearance of the retina may be observed when viewed through the ophthalmoscope (the invention of the immortal scientist Helmholtz), which is apparent in no other disease. A white streak or spot is present near the entrance of the optic nerve into the retina; sometimes, also, blood of different quantities oozes from it. Disturbances of the sight, and sometimes temporary blindness, are sufficient signs to set the patient on his guard for the prevention of future chronic kidney inflammation, and he will then have his urine analysed. The disease may continue for months, or even years. Its course is, for the most part, unfavourable, and the end fatal, although a few cases may be shown in the opposite direction.

The treatment is the same as that for "Kidneys, Inflammation (Acute) of the." At the same time, it should be also applied in the direction of the fundamental cause. The diet must be purely vegetarian; beef and spirituous and narcotic liquors are to be strictly avoided. Bed vapour baths and general body massage are also prominent curative factors.

Kidneys, Inflammation (Suppurating) of the Abscess.—Suppurating kidney inflammation is always the consequence of other diseases, and arises mostly from a misdirected pathological product, which finds entrance into the kidneys by way of the urinary canals or the vessels bearing its supply of blood. Inflammatory affections of the bladder, urethra, acute inflammation of the inner wall of the heart, suppurating liver inflammation, injuries to the kidneys, kidney stones, etc., can all, and easily, be followed by suppurating inflammation of the kidneys. The suppurating process may seize one or both kidneys. The symptoms are frequently concealed by those of the fundamental trouble. Direct injuries to the kidneys, through jamming, a blow, stab, or shot, etc., present a clinical picture, characterised by cold shivers, high fever, violent pain in the region of the kidneys, urinary impulse, with albuminous urine mixed with blood. In other cases, the only certain sign of suppurating inflammation is the presence of matter in the urine. Should the inflammation be the result of general blood or matter poisoning (pyæmia), the complex symptoms are generally similar to those of the fundamental disease. Abscess on the kidneys, when it does not produce uræmia (refer to this in Index), may find an external exit, or may discharge its matter

inwardly, when either inflammation of the peritoneum results, or the matter is ejected by means of vomiting, or in the excretion. Its outward discharge offers most chance for a favourable issue. The disease is always of a serious nature, and finishes fatally either in a few weeks or months.

The treatment must be directed to the removal of the fundamental cause. In injuries of the kidneys it is similar to that prescribed for the acute form. The local application for suppurating inflammation, consequent upon some other cause, consists of vapour compresses to the region of the kidneys, from six to eight in succession, changing them in every eight to ten minutes. Moist heat offers the possibility of inducing external discharge, and therefore the chance of a favourable issue to this highly dangerous disease.

Kidneys, Movable.—In their natural position, the two kidneys are maintained in their relative positions to the stomach and diaphragm, by their capsules. On this account it is often found that the kidneys, especially the right one, have quitted their original place, and become movable.

The cause of this change may be attributable to the formation of a weak, fatty substance in the kidney capsule, or to the weakness of the connective tissue surrounding the kidneys, an abnormally long hepatic artery; or it may be produced by excessive tight lacing, or wearing tight belts by women, or by lifting heavy weights, straining motions, or through pregnancy. It often happens that the “wandering” kidney does not occasion the slightest uneasiness in the patient, and that no pain is experienced from the dislodgement of an important organ. In other cases, examination by means of the fingers shows that at the opening of the pelvis the kidneys resemble a tumour, adhesive, yet movable, in the pit of the stomach.

The general symptoms, while the change of position is being effected, are: Pains in the stomach and small of the back and loins, retching, vomiting, etc. In other cases, however, I repeat, all these symptoms are lacking. Undoubtedly in the first stage there will be the existence of acute inflammatory affection of the kidneys or the pelvis, obstructing the urinary tube. Then occurs the sudden appearance of congestion, which leads on to sharp pains, vomiting, scanty voiding of urine, shiverings, high fever, eruptions, and not unfrequently, collapse.

The treatment consists in a regular, natural mode of life, in moderation, and physical restraint. Women must abstain from tight-lacing. When the application of water is employed, trunk baths of 82° to 86° F., or sitz baths at 84° to 88° F., are taken once or twice daily, or nightly abdominal bandages at 77° to 82° F., and occasionally enemas for loosening the bowels. Pressure on the kidneys requires the patient to keep his bed, lying on his back, and the application of vapour compresses to the kidneys and lower portion of the stomach, together with a sitz bath graduating from 95° to 106° F. By careful pressure and rubbing, the displaced kidneys are restored to their natural position.

Kidney Pelvis, Distension of the. — Distension of the kidney pelvis, which generally goes hand in hand with atrophy or degeneration of the kidney tissues, arises in consequence of the contraction of any point in the urinary passage causing obstruction in the conduct of urine from the kidneys. This obstruction causes overflow, and distension therefore of their walls. Should the overflow take place in one of the two urinary conduits, the distension is developed only in that part of the pelvis of the kidney adjoining the ureter, and should its seat, on the other hand, be in the urethra, distension of both kidneys takes place. As causes of the disease I name the following: Urinary stones impacted in the urinary conduits, scars in the same, pressure upon them through new formations or exudations into the abdominal cavity (tumours of the ovaries, displacement of the womb, cancer of the rectum, inflammation of the peritoneum, etc.); also twisting of kidney conduits, stones in the bladder, stricture of the urethra, phimosis, pregnancy, etc. The symptoms are as follows: Tension and pressure in the region of the kidneys, difficulties of respiration, constipation, etc. From a diagnostic point of view, the presence of a round fluctuating tumour is of importance. It is found in the earlier stages, by means of palpation and inspection, in the abdominal cavity, near the kidneys, and, in subsequent stages, somewhere about the middle of the cavity. In many cases the urinary conduits which are drawn into sympathy may be felt as strong, hardened cords. The percussion of the ulcers emits a dull sound. Should the percussive finger strike the bowel portion lying over the tumour, the sound produced is tympanitic. The boiling of the urine and microscopic examination of its sediment gives no particular sign that is of much value in the

forming of the diagnosis. The disease attacks women of advanced years, and it then offers a chance of favourable issue when the successful removal of the fundamental disease has been accomplished.

The treatment must be directed to the removal of the cause. Should its recognition or removal be unsuccessful, the treatment specified for "Kidneys, Inflammation (Chronic) of the" should be chosen. The palliatives for the abatement of the disease are vapour compresses, vapour sitz baths, commode vapour baths, and sitz baths increasing from 95° to 106·25° F.

Kidney Pelvis, Inflammation of the.—Inflammation of the mucous membrane of the kidney pelvis is almost always the consequence of, or the accompanying symptom of, some other disease. Urinary overflow, mechanical irritation through kidney stones; inflammatory affections of neighbouring organs, transferring themselves to the surface of the kidneys; infectious and general diseases, etc., may be the originating cause of inflammation of the kidney pelvis. The symptoms are in many cases wholly concealed by those of the fundamental disease. In those cases in which they are quite apparent, the symptoms are pains in the region of the kidneys, urinary impulse, in many cases sickness and vomiting; slimy, sometimes mattery, urine, and fever of different degrees, with its manifold accompaniments. The disease takes an acute as well as a chronic course. The treatment must be directed to the removal of the fundamental cause. Further measures are similar to those prescribed for "Kidney, Inflammation (Acute) of the." The diet must be mild, plain, and would be most effective in the liquid form, much sour or sweet milk, soups of different kinds, apple pulp, etc.

Kidneys, Stone in the, originates in the ureters, in the kidney pelvis.

Irregular mode of life and luxurious diet foster the formation of kidney stone. It is therefore very general among gourmands and free livers, those of full habit of body, fat and gouty subjects.

Disorders of the kidney, or pelvis of the kidney, frequently lay the foundation of stone in the kidneys. It is also a disease to which persons of extreme old age are much disposed. Usually it commences in the pelvis of one kidney only.

There is a wide distinction between kidney gravel, kidney sand, and kidney stone. Kidney gravel represents a fine-

grained, pulverised mass, accompanied, as a rule, in the pelvis, by stones of various size and form, to the number of a hundred and upwards. The chemical composition of the stone is chiefly uric acid, salt phosphates, sulphates, and oxalates.

The symptomatic complications are extraordinarily varied: Pains in the stomach, retching, bladder catarrh, urinary pressure, voiding blood with the urine, etc. The general premonitory symptoms are periodically recurring violent pain, similar to that experienced in kidney stone or kidney colic. The pain usually reveals itself in the first instance in any shock to the system (through travelling, driving over rough streets, leaping, running, etc.). Or without any perceptible cause, a stone becoming detached from the kidney pelvis, enters the urinary tube, and forms an obstruction there, the pain communicating itself to the thighs and generating organs.

The skin of the patient is cold and clammy, and the pain so intense, that swooning and spasms may occur. The disease culminates if the stone reach the bladder, or is returned into the kidney again.

Contraction or inflammation of the kidneys, or expansion of the kidney pelvis, will combine to create stone there.

The treatment consists in following the remedies for strengthening the system: Bed vapour baths, enemas at 77° F., massage of body and stomach, holding a prominent place in the appliances. The food should be plain, simple and digestible.

For the mitigation of an attack of kidney stone, vapour compresses are applied, and changed every eight to ten minutes, or a graduated hot bath, 95° to 106° F., lasting from twenty to thirty minutes.

Father Kneipp recommends for the cure of stone the use of half-baths, full length, hip, spinal, and foot affusions, taking at the same time a herb tea, a compound of bitters (wormwood), juniper berries and shave grass. (Comp. also with the article "Bladder, Stone in the.")

Knee Douche, according to Kneipp. (See Index.)

Knee Joint, Dropsy of the. (See "Joints.")

Knee Joint, Inflammation of. (See "Joints.")

Kneipp's Spanish Mantle. (See Index.)

Kneipp's System. (See Index.)

Knots on the Rectum. (See "Hemorrhoids.")

Kuhne's Treatment. (See Index.)

L.

Laryngeal Catarrh, Inflammatory Throat. (See "Diphtheria.")

Laryngeal Catarrh (Membranous). (See "Croup.")

Laryngeal Inflammation. (See "Tonsilitis.")

Laryngismus. (See "Cramp of the Vocal Cavity.")

Larynx, Cancer of the.—The cause of cancer in the larynx, as of all other cancerous diseases, is a dyscrasia, or faulty admixture of juices of the body, as already mentioned in the article on laryngeal catarrh; predisposition is another source; as also injurious external influences, excessive smoking, constant breathing of air impregnated with dust or poisonous vapours; cauterisation of the laryngeal mucous membrane, especially in cases of innocent new formations on the same in previous laryngeal disease proceeding from a syphilitic basis. Of a spongy cauliflower appearance, it develops slowly, eats away the laryngeal wall by a protracted course, and finally changes the entire laryngeal apparatus into a putrid and inflammatory mass of decay. The symptoms are: Dropsical swelling of the laryngeal skin, great difficulty in respiration, swallowing, and eating; loss of voice and speech, terribly putrid breath, bad taste in the mouth, terrific pains, and other affections equally horrible. The duration of this terrible disease extends to from one to two years. Death is due to either suffocation, inflammation of the lungs, or starvation. The treatment can only be effectual when taken at the commencement of the disease. It consists, when the patient's strength is proportionate, either in a strong or modified course.

First and foremost, the general health cure is applied; then massage of the neck and body generally, medium full baths, bed steam bath (No. 3), gargling with a 77° F. gargle, to which has been added some fresh lemon juice; and stimulating neck, body and calf packs at 77° to 81° F., etc. The diet must be strictly vegetarian.

Larynx, Catarrh of the.—Like all mucous membranes of the body, the mucous membrane of the interior of the larynx is subject to catarrhal affections. It is either affected in certain places, or throughout the whole surface; generally only neighbouring mucous surfaces are sympathetically affected, especially those of the bronchial tubes,

vocal cords or fauces, etc. Like all other catarrhs, it is distinguished by two conditions, viz., acute and chronic.

The causes of acute laryngeal catarrh are the following: Colds, inhalation of dust atoms and poisonous or irritating vapours, etc.

Frequently there is a predisposition to the disease in question, in which case an exterior, injuriously operating influence works upon the "*pars minoris resistentiæ*," i.e., that part of the body which is least capable of resisting it. Public singers, orators, actors, clergy-men, teachers, officers, or those in a position of command, are generally liable to and frequently afflicted with it. It often presents the character of an infectious or constitutional disease.

The complex symptoms are as follows: Hoarseness, a thick, rough, sometimes uncommonly deep voice, which is caused by catarrhal affections of the vocal cords; short, difficult breathing, coughing, irritation and burning in the bad thin, slimy, or bilious excretions, sometimes a peculiar bad taste in the mouth, low fever, etc. Should the swelling of the mucous membrane in the interior of the larynx be considerable—as sometimes happens in the case of little children—very serious respiratory difficulties, and even choking fits which are characteristic of croup, come on. Children who go to bed in apparently good health wake up in the middle of the night suffering from want of breath, a barking cough, and hoarse rough voice, sometimes none at all—in short, presenting an appearance in every respect similar to an attack of quinsy. But this state of discomfort does not last long, and is appropriately called pseudo-croup. The duration of acute catarrh, when properly treated, lasts only a few days.

Chronic laryngeal catarrh arises either from neglected acute cases, or it recurs in consequence of continued external conditions of an injurious character upon the mucous membrane of the larynx, caused by the inhalation of dust and poisonous vapours; continual speaking in cold, dusty, or badly-ventilated rooms, etc. The symptoms of chronic laryngeal catarrh which are most prominent are, a changed voice, occurring through over-exertion of the same; tickling in the throat, coughing, etc. Examination by the throat-mirror brings to light many characteristics which distinguish it from acute catarrh. These are growths on the mucous membrane, varying in size from a millet seed to a lentil, roundish, somewhat elevated and reddish; or, in lingering attacks, a

disappearance of the lower mucous tissue, a dirty greyish colouring of the thin and shining mucous membrane, to which a thick phlegm adheres. The former case represents hypertrophied laryngeal catarrh, and the latter atrophied laryngeal catarrh. Polypus is frequently developed from hypertrophy of the laryngeal mucous membrane, not as a result of atrophy.

The treatment must chiefly be directed to drawing the blood from the larynx. In acute catarrh, stimulating packs on the neck, breast and calf, at 77° to 86° F., should be applied three or four times a day, and once a day a bed vapour bath (Nos. 1, 2, 3 or 4), a gentle steam application, a foot vapour bath (Fig. 127), etc. The Vapour process has, as is well known, always to be followed by a cooling treatment, either in the form of an ablution, or a half or body bath. A laryngeal shower bath at 68° to 72° F., from a medium height, is recommended to be taken previous to the bath. The patient should lean his head back so that the external larynx comes well into view, and a second person, sitting on a stool or foot stool, should then douche the patient's larynx (external) with a watering can from the pipe of which the rose has been removed. He should also frequently throughout the day bathe the fauces at 72° to 76° F., and enjoy a plain, simple, and rather sloppy bill of fare.

Children suffering from pseudo-croup would, circumstances permitting, be most appropriately treated by a half-bath at 84° to 86° F., in which not only the back and the breast, but also, as above mentioned, the larynx should be douched with water at a temperature of 68° to 72° F. When they are again in bed, stimulating body and calf packs, 72° to 76° F., should be applied, and hot bottles enveloped in wet cloths placed against hands and feet. Also, in corresponding intervals, soothing neck packs at 68° to 72° F. should be laid on, and with due regard to the requisite intervals, small cold enemias at 63° to 68° F. successively administered. Chronic laryngeal catarrh requires to be treated in the same way as the treatment for building up the general health, with other precautions, chief among which are to be noticed: Abducting (drawing away) foot baths; air, light, and sun baths; back baths, nightly, stimulating neck, body and calf packs. Also the application of neck massage, according to Reibmayr (p. 670), with the series No. 8 of the Simple Hygienic Gymnastics, are exceedingly useful.

Larynx, Consumption of the (Tuberculosis). —

For the most part consumption of the throat (laryngeal consumption) is a derivative from consumption, and it shows itself in many cases as an independent disease. Its appearances are as follows: Sores on the laryngeal mucous membrane, hoarseness, to the point of complete loss of voice; coughing, difficulties of respiration and swallowing, pains and ticklings in the neck, and slimy or mattery excretions of a greenish-yellow colour, sometimes streaked with blood.

The treatment for laryngeal consumption is exactly the same as for consumption. (See "Lungs, Consumption of the.")

Larynx, Œdema of the. — The dropsical swelling of the mucous membrane of the larynx is never an independent affection, but is always the result of disease of the larynx or some further disease; injurious external influences which irritate the laryngeal skin, severe catarrh of the same; injuries and wounds in the larynx, new formations on its mucous membrane, as well as chronic heart, lung, and kidney affections. The disease develops either very rapidly, so that the patient's life is in danger from suffocation, or very gradually. The chief symptoms of an existing œdematous larynx are hoarseness, sometimes complete loss of voice, a rough, dry cough, painful respiration and swallowing, and a rasping, irritating sensation in the throat.

The treatment must be directed towards removing the fundamental trouble. Stimulating local bandagings to the neck (temperature 68° to 72° F.), in addition to stimulating body and calf packs (72° to 77° F.), are the applications desirable, as also gentle laryngeal massage (p. 673), and bathing the fauces at 63° to 68° F. In cases where the fundamental cause has not been discovered, or, in other cases, removed, the general treatment consists of tepid washings and gentle bed vapour baths (Nos. 2, 3, 4). The diet should be as dry as possible. In cases threatening suffocation, the patient must be placed in either progressive warm full baths, 95° to 106° F., and a high laryngeal douche applied, at a temperature of from 64° to 68° F. (p. 1175), or he must have successive vapour compresses applied to his breast, and an effort made, through vigorously-executed breast and jaw massage, or a shower according to Kneipp, coupled with a knee douche, to drive out the threatening danger. Should all these be of no avail, incision of the trachea (tracheotomy) is the only means by which the patient's life may be saved.

Larynx, Paralysis of the Muscles of the. —

Paralysis of the laryngeal muscles arises either in consequence of disease of the larynx itself, from infectious diseases and constitutional ailments; poisoning by mercury, arsenic, lead, etc.; brain diseases; or it is caused by functional diseases, disturbances of the nervous system, or other paralysis produced by reflex action. When the muscles which regulate the vocal cavity are attacked, the diagnosis is many-sided. The voice sounds more or less strange, and difficulties of respiration, with other affections, manifest themselves.

The treatment is only effectual when it succeeds in removing the fundamental cause. In doubtful cases the treatment given in the above article for cure of chronic laryngeal catarrh should be the one chosen.

Larynx, Polypus of the. (See "Larynx, Catarrh of the.")

Larynx, Syphilis of the. — Laryngeal diseases very frequently indeed have a syphilitic basis. In most cases affections of the mucous membrane appear, together with the second syphilitic stage, and from the never-ending sequels attendant upon this wretched disease, it is always drawn readily into sympathy with the larynx. Its characteristic symptoms are partly greyish, flat, exuberant growths on the mucous membrane of the vocal cords and larynx (gummatous), which, in long-standing cases, change into putrid sores. These sores are found on the upper part of the throat, which they completely eat away should no adequate treatment be found for their removal. Inflammation of the laryngeal cartilage is also frequently induced by syphilis.

The treatment of syphilitic larynx is the same as that for syphilis and general debility. (See further, "Syphilis.")

Lassitude. — The lassitude which follows bodily or mental exertion, sexual intercourse, sleepless nights, etc., cannot be made the subject of treatment unless by removing the cause of the ailment. Rest, sleep, and fresh air will restore the original bodily and mental vigour. The lassitude or debility which is usually seen before very serious illnesses, more particularly typhoid fevers, and shows itself as extreme exhaustion, requires the application of a mild but yet efficacious water treatment, either to check the disease in its incubation stage, or by shortening the period of the incubation stage to more quickly eliminate the disease from the system. Perfect rest for body and mind must be observed; the

nutriment should be non-excitant and plain; food should not be taken when not hungry; inspire good air, and daily have either a bed vapour bath No. 2 or No. 3, followed by an ablution, or daily a close-stool vapour bath with a body bath to follow, or a hot herbal swathing (whole), with vapour to follow, in bed; either daily cold, moist friction or two whole washings, a stimulating whole-pack or stimulating three-quarter pack at night; a stimulating abdominal bandage and stimulating calf-pack. Any one of these applications may be chosen, according to constitution, age and sex of the patient. (Further information about the various processes, see Index.) The tired and languid feeling which is frequently felt whilst undergoing the Natural Treatment is caused partially by the changed, non-stimulating diet. Highly-stimulating foods and drinks, such as piquant, spiced meats, coffee, tea, wine, beer, etc., are not to be taken, and this condition may almost be likened to "a calm before the storm." The organism of the body is collecting power for the coming battle to expel the disease-causing or foreign matter, which has been assisted for expulsion by the treatment, "helter-skelter" from the system.

Some time after taking the half-baths, Kuhne's sitz baths with friction, body baths, etc., there is a tired and languid feeling, whereas, during the baths and immediately after, a feeling of exhilaration and freshness is experienced. The baths are positively strengthening to the organism, and the thermic stimulation of the cold water produces electric currents to the interior of the body. These currents last for some time after the producing cause has ceased to act, as I have already clearly demonstrated on p. 446. When the molecular movement (electric current) has quite ceased, more particularly in the nerves, a sensation of exhaustion is felt, which is more acute in proportion to the stimulation experienced beforehand. We must also take into consideration the circumstance, that the fermentative foreign substances are once more precipitated, and again become a bane to the blood and nerves, that is to say, disorder the physiological action of the organism to the extent of causing a feeling of exhaustion. It is therefore advisable, and produces a good effect, if we take a restoring and refreshing sleep after any of the baths. The patient who experiences the most excitement to his circulation by the bath has the greatest flow of used-up matter (which is identical with disease-causing matter) to the excretory organs, a work which forms one of

the chief tasks of the body during sleep. With continued convalescence, and consequent clearance of foreign matter from the body, the excessive and untimely exhaustion seems to disappear on its own account. (Comp. "Debility.")

Lavation. (See Index.)

Lead Poisoning. — A distinction must be made between acute lead poisoning and chronic lead poisoning.

Acute lead poisoning is of more rare occurrence, and arises through considerable quantities of lead finding their way into the stomach, as, for instance, through eating lead in mistake for sugar, through partaking of wine that has been sweetened and cleared with sugar of lead, through partaking of water that has come through new leaden water pipes, etc. The symptoms of poisoning are shown a few hours afterwards by a sweetish taste in the mouth, sickness, pains in the stomach, ptyalism (that is, excessive flow of saliva or spittle), weakness, and by pains; sometimes also by trembling of the legs. Very often a white slimy mass is brought up. The face becomes pale and the pulse slow (forty-five to fifty beats in the minute); the lips assume a blueish tinge, and giddiness, stupor, and general bodily decline usher in a deep unconsciousness which may end in death.

The treatment must consist in a rapid emptying of the stomach and the intestines. When one suspects that poison is still present in the stomach, sulphate of soda or sulphate of magnesia is given as an antidote, a quarter to half-a-drachm of either one or the other of these two remedies in the form of powder, dissolved in water, being administered every five minutes. If the lead has already reached the intestine, administer one to two tablespoonsful of castor oil every hour. When the first threatening symptoms have been overcome, reclining vapour baths No. 2 or No. 4, whole or three-quarter packs, are to be given, and one is to follow generally, for a length of time, the rules laid down for the cure of chronic lead poisoning, in order that the fluids of the body may gradually excrete all the lead that they have taken up.

Chronic lead poisoning is a disease which, in consequence of our modern business and industrial relations so opposed to nature, must be reckoned amongst the most widely-spread trade diseases. The workers that suffer chiefly from this disease, so-called "lead colic," are those employed in white lead factories and in potteries, metal workers, decorative

painters, the makers of small shot, tinkers, enamel and glass workers, type founders, compositors, and many other workers in kindred trades. The lead comes in contact with the human organism either in the form of metallic lead, as lead salts, or as oxide of lead, and makes its entry into the fluids of the body and into the blood through the mucous membranes of the body, being inhaled through the mouth and nose, or finding its way into the stomach with the saliva and food. It may also, however, find its way into the system through the eyes, and in the case of female workers, through the sexual organs. Chronic lead poisoning shows itself in various forms of disease. In addition to colic there arise also diseases of the brain, pains in the limbs, and paralytic phenomena. Hot weather, badly ventilated rooms, uncleanness, dissoluteness and excesses of all kinds, provide favourable conditions for the outbreak of the poison, for which different individuals have a greater or less predisposition and susceptibility.

At first disturbances of the digestion make themselves felt. The patients become thin, and acquire an earthy, pale, greyish-fawn colour of the skin. They suffer from loss of appetite, and from pressure on the stomach. The teeth become grey, and the gums are edged with a blue line (this especially is recognised as one of the characteristic signs of chronic lead poisoning), the taste in the mouth is somewhat sweet, and the breath smells badly. With these troubles are occasionally associated colic-like pains, which, however, are also sometimes the first symptoms to appear. Violent pains, accompanied by feelings of constriction in the region of the navel, the sensation of wind, and of twisting in the intestines, are combined with great fear and excitement, distortion of the face, sinking in of the pupil of the eye, a dull look, and a restless turning about on the bed. Constipation usually accompanies this condition. The abdomen is at the same time hard and contracted, urinary troubles also are generally present. The pains wander over the sexual organs as far as the perineum. The attack, which ends with the breaking up of wind, may last for half-an-hour, and if there are large quantities of lead in the organism, even for from three or four to eight days. The affections of the brain generally result from the frequently repeated attacks of colic, and show themselves in symptoms of sleepiness and delirium, or in epileptic fits. Pains in the limbs and paralytic condition generally arise independently, as sequelæ (that is to say,

diseases that follow from the after-results of another disease) of an irritable condition of the spinal marrow brought on by chronic lead poisoning.

Treatment: In the first place removal of the causes; then, for several weeks, the adoption of the General Strengthening or Tonic Treatment, in which a prominent place must be given to stimulating whole and three-quarter packs, reclining vapour baths Nos. 1, 2, 3 and 4, nightly stimulating fomentations, nightly packs for the calves, etc. Occasionally a strict lowering treatment is indicated. When there is an attack of colic, a stimulating abdominal fomentation must be given at from 77° to 81° F., alternating with vapour compresses on the abdomen, hot sitz baths, as well as laxative enemas, followed by small cold ones.

As prophylactic measures (that is to say, as the best means of preventing the disease), the following course is to be recommended: The greatest possible cleanliness, great care being taken to have the body thoroughly washed all over every day, and to take one or two Turkish baths every week. The hands and the mouth must be thoroughly cleansed before every meal, the teeth being cleaned with vegetable charcoal, and the diet must be for the most part vegetarian, but not of a kind which would produce flatulence. All factories and workshops must be thoroughly well ventilated both by day and by night; the workman must not begin his work on an empty stomach, and neither keep his food nor eat it in the workroom; he may, if he likes, smoke, for the saliva, saturated with nicotine, covers the mucous membranes of the mouth and the larynx, and thereby prevents the absorption of the inhaled lead poison, or at least diminishes it.

Leg Bath. (See Index.)

Leg Pack. (See Index.)

Leg Vapour Bath. (See Index.)

Legumes. (See Index.)

Lemons. — The lemon is the fruit of the *citrus medica*, a tree cultivated in Italy and Spain. Its juice is an excellent remedy in very many diseases. It is especially to be recommended for all gouty maladies. The juice must, however, then be drunk by the gouty patient in very large quantities. The lemons are thinly peeled, and then, with an ordinary lemon squeezer, the juice must be as completely expressed from the fruit as possible. On the other hand, the ready-squeezed lemon juice that we buy at druggists and

chemists' shops exercises none of the desired effect. To obtain the necessary quality, the lemon juice must be daily pressed out from fresh lemons. On the first day the patient should drink at suitable intervals the juice of from four to six lemons; on the second day double that quantity, the juice of from eight to twelve lemons; on the third day the juice of from sixteen to twenty-four lemons; and so with every day the quantity must increase (up to from forty to fifty lemons), until the time when the attack leaves off, the pains vanish, swellings diminish, and the affected limbs again become mobile. Then diminish the quantity of the daily dose of the lemon juice in the same order as you increased it at first, and finally leave it off entirely. The patient should partake of a simple, non-stimulating, mixed diet, and only eat when he feels real hunger. The lemon juice must be taken perfectly pure, without the addition of sugar and water, and I must again lay stress upon the great importance of its being prepared fresh every day. The best time for adopting this cure is in the spring, or towards autumn, or at the time of an attack. A kind of intoxicated condition, which often accompanies the partaking of very large quantities of juice, is of no importance; it does not leave any after-effects of alcoholic drunkenness, and requires for its removal only sleep near the open window.

Quite recently, Dr. Hugo Laser, assistant at the Hygienic Institute, Königsberg, in Prussia, has made some investigations into the influence of lemon juice for diphtheria, and the result of his trials show very favourable results. He discovered that lemon juice was always very readily taken by children, and that even in severe cases an almost instantaneous relief was brought about by its use. Quite young children took slices of lemon into the mouth and sucked them with obvious satisfaction, which immediately brought them relief. Dr. Laser asserts that he has cured a whole series of severe cases with this simple remedy, which, however, he by no means wishes to be regarded as a "specific."

Stress is to be laid upon the fact that in none of the cases were any injurious effects produced by the use of the lemon juice. It would be very desirable if further experiments were made, and their results published, as to this treatment of diphtheria. At any rate one may safely, as a preliminary, make use of lemons as a palliative remedy in cases of diphtheria, and also in diseases of the liver and the gall; and in order to counteract troubles from stone in

the bladder, worms, and certain kinds of skin diseases, headaches of nervous kinds, scurvy, etc., lemon juice is said to be an excellent remedy. Lemonade made from the juice of the fresh fruit is an extremely pleasant drink for the healthy, as also for the sick; a syrup-like mixture of lemon juice and sugar relieves coughing, hoarseness, and pains in the throat. In the condition of drunkenness, the drinking of lemon juice with water, or even the sucking of the juice of one or more lemons, will sober one. With pure lemon juice, or with a mixture of lemon juice and common salt, one can remove spots from the skin and beautify it. As a remedy for chilblains and frostbite, lemon juice is applied with great advantage. A tolerably thick slice of lemon laid upon a corn during the night, and bound on, will so completely soften the corn, that in the morning it can be easily removed with a knife. Lemon juice has also proved itself very useful as a remedy for scurf in the head, for which the skin of the head must be strongly rubbed with the juice of the lemon. It has been used successfully as a remedy for warts, which must be rubbed with the juice, and covered at night with a slice of lemon. Indeed one might actually feel inclined to call the lemon a universal specific, or a universal remedy, if such a thing existed at all.

Leprosy.—Leprosy, which in former times was a disease common to most parts of the world, including almost all Europe, is now confined to Asia, Africa, America, Australia, and a limited portion of Europe, viz., Norway, Spain, and certain parts of the provinces lying round the North Sea. The nature of the disease, which appears to be a chronic, contagious, general affection of the body, characterises itself by formation of elevations in the cuticle (a granulous cellular overgrowth), which breaks out chiefly in the face, on the hands, and also the soles of the feet. Months before the disease breaks out, premonitory signs, as dead feeling in the limbs, freezing and cold shivers, pressure and headache, general debility, lassitude, unnatural sleep, loss of appetite, sickness, nausea, derangement of the digestive organs, etc., are visible. The disease itself is shown by red, irregularly-formed spots, of about lentil size, on the skin. These lie on a somewhat elevated surface, and gradually assume a round, hard, knotty appearance, ranging in size from a pea to a walnut. In course of time they lose their narrow, contracted, knotty character, and their rosy colouring, and become pale, soft and withered.

Similar knots are formed on the mucous membrane of the nose, eye, mouth and larynx, and produce disturbances of the organs of sight, smell and speech. Subsequent stages frequently increase these to deep-seated tumorous formations. Another form of the disease is the smooth leprosy. It arises from violent pains in certain nerve centres, soon changing into a state of total anæsthesia (loss of feeling). Or the affected skin surfaces, becoming either white or black, are covered with pustules and blisters, which then burst, and leave a more or less extensive ulceration.

The treatment consists in the application of the General Strengthening Treatment, or a severe or modified abstaining treatment. The local treatment consists in the application of the given prescriptions for suppurating boils, inflammations and wounds. In numerous cases Kuhne's treatment is to be recommended. The régime formulated by Louis Kuhne, in his "New Science Health Course," by which he himself effected the cure of several very serious leprosy cases, as well as the circumstance that the nature of leprosy fits in exactly with Kuhne's theory, offers a guarantee for the cure of the disease under a strictly-carried out application of his treatment.

Leprosy, Diseases partaking of the nature of.

(See under the separate heads: "Herpes," "Tetter," "Lichen Eruption," "Scabies," "Itch," "Measles," "Smallpox," "Scarlet Fever," etc.)

Leucocythæmia. (See "White-Bloodedness.")

Leucorrhœa. (See "Women, Diseases of.")

Lichen, or Nodular Eruption, is a peculiar form of skin disease, sometimes resting on a scrofulous basis, and giving rise to the formation of nodules. At the beginning of the malady small nodules of about the size of millet-seeds, and of a reddish colour, make their appearance in the skin. These either exhibit an indentation in the middle, or are covered with flat scales; gradually more and more similar nodules make their appearance, which spread over the skin and finally cover large surfaces of it. Often the whole surface of the body, from the roof of the head to the toes, is covered with the eruption, which, after it has lasted some time, makes the skin dry, brittle, and full of cracks, and devoid of brilliancy. The eruption also causes the skin to thicken, and finally entirely destroys its elasticity and mobility. When the site of the eruption is chiefly on the face, the expression of countenance

becomes stiff and immovable. When the limbs are chiefly affected by the eruption, their power of movement is always more or less hindered. When the hands are attacked by the eruption, they are very strongly covered with scales; the skin is broken and full of bloody cracks, so that every movement of the hands causes great pain.

The treatment for the removal of lichen is the same as that for the cure of herpes. (See under this head). Lichen which arises as a consequence of scrofula requires a treatment directed to the removal of the primary disease. (See also "Tetter.")

Light. (See Index.)

Lightning Shower Bath, according to Kneipp. (See Index.)

Lightning Stroke.—When a man gets into an atmosphere charged with lightning, without being actually struck, he is stunned, rendered unconscious, and affected with convulsions or convulsive movements. This condition is no doubt brought about by the electric currents which emanate from the flash of lightning and penetrate the human body. If, however, lightning strikes a man directly, then most frequently only the surface of the body is singed, the hair is burnt, and the eyes become bloodshot. When tight clothing is worn, bones have also been observed to be broken. Metal objects which were on the person struck are bent; in other cases consciousness is lost, the breathing is rendered difficult, the pulse beats are small and irregular and scarcely perceptible, the face is swollen and red, the eyes are bloodshot, and there is often a flow of blood from the nose, mouth and ears. In other cases, again, the lightning stroke brings about unconsciousness, catalepsy or apoplexy, and sudden death.*

* Professor Boudin gives the following very striking picture of a man struck by lightning:—"Sometimes the lightning strips its victim naked, destroys the clothes and spares the body; sometimes it destroys the body and spares the clothes. Now it kills suddenly and on the spot, so that the dead man remains standing upright, sitting, or riding, or, on the other hand, the one struck is thrown twenty yards forward, and is found in the branches and foliage of a tree. The anatomical injuries which the lightning stroke leaves behind are of an extraordinary kind, tearing the heart and shattering the bones; at other times the most careful post-mortem examination does not reveal even the slightest injury; or the corpse seems to defy the laws of decomposition, or corruption may set in with the utmost rapidity."

Treatment: The person struck by lightning must be brought as soon as possible into a cool place, gently and very carefully undressed, and then artificial breathing (see under this heading) must be adopted. He must be made to smell smelling-salts (ammonia), and cold water must be poured over him. Then the whole body must be strongly rubbed with the bare hands until the skin reddens and automatic breathing sets in. Instead of pouring water over him, one may apply damp cold friction at from 64° to 68° F., or he may be given a hip bath at from 77° to 81° F. When he is in the hip bath, water at from 64° to 68° F. should be poured over the patient without intermission. After three or four minutes he should be taken out of the bath in order to be dried, and subjected to very powerful rubbing, and then laid in a warm bed. After a short time of rest the hip bath, etc., should be repeated. In the intervals between the individual procedures, laxative enemata, at from 77° to 81° F., should be given, followed by small cold enemata at from 60° to 64° F. One may also add a little vinegar to the cold enema. A remedy that has saved many is the "earth bath." This is administered as follows: A grave two or three feet deep, which must be of the full length of a man, is rapidly dug, in which the victim of the accident is laid entirely undressed, and with the head raised. He is then covered well with one-and-a-half to two feet of earth.

Limbs, Frozen. (See "Frostbites, etc.")

Lipoma, or Fatty Tumour.—The accumulation of fat in unnatural quantities in a single part of the body is called lipoma, or fatty tumour. This exhibits a roundish, ragged tumour, composed of fatty tissue, which is gradually, generally very slowly, developed in the skin and in the subcutaneous cellular tissue, and sometimes attains an enormous size. Pain or inconvenience is not usually associated with it. The treatment is the same as in the case of encysted tumour. (See "Cyst.")

Lips, Chapped. (See Index.)

Liver. (See "Digestion Organs of.")

Liver, Diseases of the.—In consequence of its deep seatedness, size, the importance of its functions and physiological relationship with neighbouring organs the liver is subject to a great variety of diseases—some of them primary, independent diseases others secondary or the result of other affections and unhealthy conditions.

Liver, Atrophy of the.—A diffuse chronic inflammation of the liver, causing excessive growth of the connective tissue of the liver cells, and resulting in the gradual disappearance of the liver substance. This form of disease is mostly brought about by abuse of alcohol, and the degenerated condition receives the name of “drunkard’s liver.” Popular wit then calls a toper “a dry liver.” In the initiatory stage of liver shrinking, it is generally veiled by the more prominent operations of chronic stomach and bowel catarrh, but by subsequent process the liver undergoes a manifest change in its circumference, first by increase, secondly by decrease. To this is added swelling of the spleen and dropsy, without, however, corresponding dropsical swelling in the under-extremities of the body. In consequence of the upward pressure of the liver, difficulties of respiration ensue, and the heart, which is forced out of its natural position, is unable to perform its accustomed duties. The skin and muscles are generally lax, thin, and withered, and the blood vessels in the skin of the stomach distend, project, and wind themselves in a tangled mass around the navel. The digestive organs are drawn into sympathy, the process of nutrition suffers, and the patient assumes a sickly appearance. The duration of the disease is from one to three years. Its issue is generally fatal.

The treatment consists either in a cautiously-chosen abstaining treatment, or in the General Strengthening Treatment. The diet must be plain, and, according to the directions of the Italian, Dr. Semmola, consist absolutely of milk foods.

Liver, Cancer of the.—Cancer of the liver is a frequently-occurring disease, for the most part between the fiftieth and sixtieth years. Women are rather more liable to it than men, as cancer of the womb or breast is frequently extended to the tissues of the liver. Soft cancerous growths are found in the liver, and there innumerable, individual, round knots, ranging in size from a pea to the circumference of the fist, are formed on the upper surface of the liver. Cancer of the fibrous kind also takes place in the liver. By cancerous degeneration the liver increases enormously in size, so that its weight may amount to about thirty pounds. Very frequently a rough condition of the liver may be recognised by the touch through the stomach walls. Pains, increasing on pressure, are generally present. Further symptoms are difficulties of digestion, sleeplessness, sometimes jaundice, dropsy, and general constitutional cancer symptoms. The duration of its

course is, on account of individual constitution and accompanying circumstances, very varied. Sometimes it amounts to weeks, or, again, to two or three years before death brings relief.

The treatment must have a diminution of the suffering in view, as cure is impossible. The treatment given for "Intestine, Cancer of the," or that prescribed for "Women, Diseases of: Cancer of the Breast," should, with their modified local treatment, be chosen, and applied in corresponding manner to the case of liver cancer. Steam compresses and sitz baths, increasing from 95° to 106.25° F., should take a prominent part in the curative treatment.

Liver, Congestion of the, caused by tight-lacing. — This form of liver complaint occurs in women who habitually tight-lace themselves. In consequence of this, a more or less deep rut is formed on the surface of the right lobe of the liver. The symptoms consist of pressure and painfulness in the region of the liver.

The treatment consists in nightly applications of body bandages from 77° to 81.5° F., together with thick, stimulating, extra compresses at 72.5° F., on the region of the liver; also, in from two to three daily trunk baths at 77° to 81.5° F. Besides this, the General Strengthening Treatment should be carried out.

Liver Degeneration; Acute Jaundice. — Acute jaundice is an uncommon disease, and is recognised by the decay and the fattening and absorption of the tissues of the liver. Its causes are unknown. In the few cases under observation, its characteristics appear as if consequent upon some acute feverish disease, syphilis and mercurialisation. The disease is more common in women than in men, and its duration is extremely short. Its forerunners are general lassitude and debility, loss of appetite, nausea, distaste of everything, etc. These may last several days or several weeks. The patient is restless, excited, and noisy. Cramp gradually sets in, followed by unnatural drowsiness, and, finally, absolute unconsciousness and death. An extremely characteristic symptom, and one contrasting strongly with liver atrophy, is the remarkably striking increase in circumference. Percussion shows this by the constantly decreasing extent of its dull area. Pain and pressure are generally present in the region of the liver, and the skin is of a yellowish colour. Towards the end of the disease, just before death, the temperature sinks either to 95° or 93° F., or it may rise to 105° or 106° F. The issue is in most cases fatal.

The treatment should be directed to the alleviation of the accompanying affections. It consists in mild complete washings at 77° to 81·5° F., tepid full baths, soothing compresses at 77° F. to the head, body bandages at 77° to 81·5° F., and aperient enemata at 77° F.

Liver Degeneration, Fatty, of the. — When a superabundant quantity of fat has been carried through the portal vein, and settles between the liver cells, the abnormal condition so formed is termed fatty degeneration of the liver. The disease is usually confined to gourmands and drunkards. On the other hand, when the albuminous matter in the liver tissue is transformed into fat, the transformation is termed fatty degeneration of the liver. Fatty degeneration is generally the accompaniment of such troubles as go along with a dropsical condition of the blood, in which case a decrease takes place in the number of the red corpuscles which are the oxygen carriers of the body. In consequence of insufficient oxygen supply, only a partial consumption of fat takes place. Such abnormalities as poverty of blood, green sickness, tuberculosis, rickets, obesity, great loss of blood, etc., are generally followed by fatty degeneration of the liver. The symptoms are for the most part concealed by those of the fundamental cause. Other cases present only slight pressure and painfulness in the region of the liver. Percussion shows an increased dull area.

The treatment must be directed towards the removal of the fundamental cause. Gluttons and drunkards should follow the course prescribed in the article treating "Obesity;" while poor-blooded patients, and those disposed to green sickness, rickets, etc., should go in for the General Strengthening Treatment.

Liver, Hydatid Tumour of the (Echinococcus).

— The liver is sometimes the seat of the larva of a parasite (*taenia echinococcus*). Its presence in the human liver is due to swallowing the eggs of the echinococcus. Everyone who allows himself to be licked by his dog, or otherwise comes intimately in contact with him, places himself in a position of possibly acquiring the echinococcus.

The symptoms of hydatid liver first make appearance by considerable increase in liver bulk, and consist in very bad pressure, tension and pain in the region of the liver, shortness of breath (consequent upon the forcing of the lungs and liver from their accustomed situations in the body),

swelling of the spleen, jaundice, dropsy, etc. The tumour or cyst itself presents the appearance of a tightly-stretched bladder of varying size, seated on the lobe of the right liver and filled with fluid. On palpation or percussion, a peculiar flutter of this fluctuating tumour may be noticed, which is similar in effect to the vibration of a pulsating mass. When it has burst, it empties its contents into the thorax or abdominal cavities, where an inflammatory process in the affected organs takes place, ending only in death. It is more favourable when the issue takes the form of liver abscess, discharging its matter outwardly through the medium of the abdominal walls.

The treatment falls under the province of surgical operation. Precautionary measures consist in avoidance of close contact with dogs, and specially in the all too common habit of allowing dogs to lick the fragmentary remains from plates and other utensils in daily use, for on these the dog deposits the eggs of this parasite, which he frequently carries in his mouth, and should the dish not be scrupulously washed, there is always the possibility of the spawn being deposited in the stomach of the unfortunate individual who happens to eat therefrom. Dogs should have their own particular eating and drinking vessels, and make use of these and these alone.

Liver, Hyperæmia of the; Plethora of the Liver.

—Plethora of the liver is the result either of increased blood supply to the liver, or an obstruction of blood in the liver. In the former case a normal physiological process takes place, seen in every act of digestion, when the increased flow of blood to the intestines and the absorption of the chyme causes congestion of the pylorus, and also of the liver. Should the normal physiological operation of the liver be increased in intensity and duration by either a too frequent or too rich nutritive supply, the organ gradually attains an abnormal and diseased condition. This is also brought on by rich, highly-seasoned foods, or spirituous drinks or narcotics. The following are the causes of congestion of the liver: Diseases of the trachea, bronchial tubes and aorta; unequal distribution of the blood, disturbed circulation, weakness of the heart's action, chronic cold feet, certain forms of women's diseases, feverish diseases, climatic influences (residence in damp marshy districts), other affections of the lungs, etc. The appearances of congestion are as follows: Tension, pressure and pain in the liver, sometimes shortness

of breath, catarrhal affections of the bowel and stomach, bleeding, hemorrhoids, and, in subsequent stages of the disease, dropsy. On inspection we discover a swelling, an extraordinary arching on the right side of the upper part of the stomach. In many cases the under flap of the liver occupies an abnormally deep position in the abdomen, during the process of breathing. Palpation, during relaxation of the abdominal walls, presents the under edge of the liver in an abnormally hardened condition. In severe congestion its position is frequently in the region of the abdomen, close to the navel. On percussion, a greater dull area is found than in a normal condition, therefore it is easily ascertained in what part of the liver increase has taken place.

The treatment must be directed to the removal of the fundamental cause and its ill effects. In the case of cold feet, or diseases of women, the prescriptions given in their relative articles should be used. Gluttons must confine themselves to scanty diet, topers bidding adieu to the bottle; coffee drinkers must renounce the loving-cup; sedentary workers must exercise their limbs in the open air. Stomach massage, the Movement Cycles No. 4, and the Quick Simple Movements of the Health Gymnastics, are of the utmost importance in removing all trace of liver hyperæmia.

Liver, Inflammation of the (Hepatitis). — Degeneration of the liver cells is produced in consequence of complicated diseases. Such troubles as long and tedious suppurating processes, especially those of a tuberculous basis, excessive loss of secretions, bone inflammations, softening of the bones, gout, rickets, syphilis, mercurialisation, inflammation of the kidneys, etc., frequently lay the foundation of future degeneration of the liver. The symptoms of hepatitis are usually concealed by the more prominent ones of the fundamental cause, and such affections as tension and pressure in the region of the liver, difficulties of respiration, eructations, vomiting, swelling of the body, etc., can scarcely be considered characteristics, since they are the usual accompaniments of other forms of liver disease.

The treatment must be directed towards removal of the fundamental cause, and also consist chiefly in the application of the General Strengthening Treatment.

Liver, Inflammation of the, suppurating, is brought on either by external injury reaching the liver through the abdominal walls, or it is caused by friction with sharp-edged gall

stones, thereby setting up suppuration of the liver. The process of inflammation, when it has set in, may affect other organs lying in the vicinity of the liver, and continue its operations there also. The course of the disease is very severe when external operation has been the cause, but in its chronic form, it may be years before any operative influence calls it into action, and then an acute and vehement attack is the result. For the most part the inflammatory process assumes the clinical picture of typhoid or intermittent fever. Frequently percussion and palpation show an overwhelming increase in liver bulk. The percussing finger can in many cases distinctly recognise a peculiar fluctuation, a sensation similar to that perceived when a repeating watch is placed on the palm of the hand and caused to strike. Further symptoms are, for the most part, loss of appetite, constipation, sickness, nausea, tension, pressure and pain in the region of the liver, difficulties of respiration, sleeplessness, loss of flesh and debility. Should the abscess break in the most favourable event, the matter empties itself outwardly, thereby forming a fistula, which frequently remains for years in an open condition; or it turns its course inwardly, causing violent inflammation, which in most cases has a fatal issue.

The treatment of abscess on the liver consists in frequent daily application to the region of the liver of from three to six compresses, changing them in every eight to ten minutes. Most cases require the application of the prescription for cure of serous inflammation of the pleura (p. 1284). For the treatment of suppurating fistula, see article on "Boils" and "Wounds."

Liver Disease: Jaundice. — Two forms of jaundice are recognised: First, congestive jaundice; secondly, catarrhal jaundice. The former arises mostly in consequence of certain forms of liver disease, by which the gall passages are contracted or blocked up. The flow of bile being either rendered very difficult or totally hindered, causes it to be obstructed within its capillary vessels, as also within the liver cells. The congested bile is then carried into the circulation, partly by means of the lymph vessels, and partly direct by the blood vessels of the liver. The gall excretion changes the condition of the blood and juices, and this change constitutes jaundice with its innumerable symptoms and affections. Congestive jaundice may also produce other diseases of the gall passages, as also disease in the neighbouring organs of the abdominal cavity.

Catarrhal jaundice is only a form of the above-named congestive jaundice. Its causes are chiefly inflammatory catarrhal affections of the bile duct leading into the liver, gall stones, poisoning by quicksilver, lead, phosphorus, etc., catarrh of the stomach and intestine (duodenum), disturbed circulation through weakness of the heart's action, lung affections, and infectious and epidemic diseases, etc. The symptoms of existing jaundice are as follows: A lemon or brimstone, sometimes green or dark yellow colouring of the skin or mucous membrane, white or brownish coated tongue, yellow tint in the white of the eye, bitter taste in the mouth, loss of appetite, eructations, nausea, rolling and rumbling in the body, swellings of the stomach, colic, pain and pressure in the region of the liver, frequent cold shiverings, seeing objects in a yellow light (as for instance when the blue heavens appear yellow), violent itching of the skin, yellow-tinted perspiration colouring the bed and body linen, etc. The excretions are usually grey (like dog's excretion), hard, knotty, and of noxiously-penetrating odour. The urine has a greenish-yellow or brownish appearance. The duration of the disease is subject to many fluctuations; it may be days, weeks, months, or years. Prospective recovery shows itself by gradual return of the excretions to their normal colouring. Should, on the other hand, no improvement take place, the result is an excess of bile in the blood, and the patient's constitution degenerates into a bad state. This induces disturbance of the nervous system (as delirium, general cramp, etc.), which, together with high fever and the above-named symptoms, form a series of complications resulting in death.

The treatment must be directed to the removal of the fundamental cause. The diet should be plain, simple, and exclusively vegetarian. The daily water applications may consist of gentle, entire ablutions at from $72^{\circ}5'$ to 77° F., from two to three trunk baths at 77° to 86° F.; also two to three aperient enemas at $72^{\circ}5'$ to 77° F., together with subsequent small, cold enemas at $63^{\circ}5'$ to 68° F., should be administered. In the intervals between bathing, by day as by night, stimulating body bandages, at 77° to $81^{\circ}6'$ F., should be applied to the patient. Pains in the region of the liver require the application of from three to six vapour compresses, changing them in every eight to ten minutes, and also sitz baths increasing from 95° to $106^{\circ}25'$ F. In order to excite action of the skin, one or two bed vapour baths (Nos. 1—4) should

be taken weekly. Massage of the abdomen and also of the whole body contributes greatly to the removal of jaundice. Finally, after this process has been gone through, the passive motions of the Health Gymnastics (Figs. 199—207), or the Movement No. 4, should be begun and carried out in all their simple, active, forms.

Liver Disease: Jaundice, Acute. (See "Liver Degeneration.")

Liver Disease: Jaundice, Infantile. — Infantile jaundice is a very common ailment. Three or four days after birth, the infant's fresh red colouring takes on a yellowish tint, especially in the breast, back and face. Professional opinion is not yet unanimous in its verdict as to the cause. The duration generally continues from eight to fourteen days. The treatment consists in application of stimulating body bandages at 86° F., frequent bathing in water at 92·5° to 95° F., as well as natural nourishment by mother or foster-mother's milk.

Liver, Syphilis of the. — The second and third stages of syphilis are frequently accompanied by inflamed conditions of the liver tissues, which, in most cases, develop into liver atrophy. It then degenerates into a fatty state, or knotted tumours of different form and size ensue. The symptoms of an existing case of syphilis are generally pain in the region of the liver, jaundice of a more or less severe degree, swelling of the spleen, or sometimes dropsy, etc.

The treatment corresponds to that prescribed for syphilis. For further reference see "Syphilis."

Lockjaw (Tetanus). — Lockjaw is a serious condition, in which (though the patient is perfectly conscious) perpetual tonic cramp is set up, with recurrent spasms. As a rule it is accompanied by reflected irritation. Medical research has discovered that it is an acute contagious disease of the nervous system, especially the spinal cord. It develops inflammation of the spinal cord and the membrane, which is shown by extraordinary hyper-sensitiveness. The nerve roots issuing from the spinal cord, and carrying out its motions, as well as those conveying nourishment to the muscles, are intensely irritated, as shown by muscular spasms. The entrance for the specific contagious matter is made by wounds, caused by stabbing, cutting, crushing, or in any other way. The size of the wound does not matter at all, but what is important is, that the injury sustained has not only laid bare blood and lymph vessels, which easily admit the contagion,

but also fine nervous centres, and the injurious effect of the contagion is thereby greatly increased. This is why injuries, when the skin is broken in very nervous parts of the body, such as the palm of the hand and sole of the foot, cause great danger of lockjaw. It appears sometimes immediately after the injury, but often days and weeks elapse. It is the great terror of the battlefield and war hospital, and occurs so frequently, that it might be spoken of as an epidemic of lockjaw. Whether the cold and wet which the wounded often suffer from as they lie, with their wounds exposed, on the ground of the battlefield for hours and days together, favour lockjaw, is yet a query. It would be as well to admit the existence of lockjaw caused by wounds only, though formerly rheumatic lockjaw was spoken of.

New-born infants are liable to lockjaw after they are a week old. The orifice of the navel is the entrance for the infection in their case. The symptoms in the earlier stage are as follows: General lassitude and weakness, restlessness, impediments of the speech and in swallowing, light-headedness, pain and stiffness in the neck, and sleeplessness, etc. The wound looks about the same, or is dry, painful and discoloured. At this time lockjaw sets in, beginning at the head. The neck muscles contract, and the head is drawn back and remains immovable in this position. If the cramp attacks the masticatory muscles, the lower jaw is fixed to the upper, and swallowing is impeded. The patient sinks from want of food at this stage. Cramp of the swallowing muscles (muscles of deglutition) is very serious, and an appearance similar to that of hydrophobia is noticed. By the excitement of the facial muscles (muscles of expression) the patient's countenance is peculiarly disfigured. The mouth is drawn to its full width, the lips are pressed so that the teeth are visible. The nostrils appear wide open, and on the forehead, between the eyebrows, deep upright furrows appear, and above them horizontal ones.

The masticatory muscles start up under the cheeks. In a further stage the muscles of the back, especially the extensors, are attacked, so that the body is bent back into a bow. The muscles of the abdomen are cramped, the abdomen is extended and drawn. Violent contracting pains are felt in the heart. The hands and feet, fore-arms and legs, are more rarely affected, but sometimes they also are stiff and drawn. If the cramp seizes the muscles of the front

part of the body, or one side of that only, or all the muscles simultaneously, the body will be bent forward or to one side, or it is perfectly straight, stiff and stark, like a statue. The cramp may last for hours, days, or even weeks. At intervals it relaxes, so that it comes on in single attacks. In this case violent shudderings shake the frame. The duration of the illness varies. Severe cases generally end fatally in two or three days. Recovery can only be hoped for when the muscles gradually relax, the attacks become less frequent, last a shorter time, and the power of swallowing returns. Convalescence take some weeks.

The treatment consists in the application of baths rising from 95° to 106° F., which can be used during the attacks as well as during the intervals, and in which the patient should remain as long as possible; or chair vapour baths, or bed vapour baths No. 1 or No. 2 may be used instead, to induce perspiration. In the intervals stimulating packs may be applied to the head, neck, spine and body at 77° to 81° F. The wounds should be dressed as directed under "Wounds," by a natural treatment. (See "Care of the Sick.")

Lockjaw, pseudo or spurious, is a frequent complication of an existing spasmodic convulsive condition, and of general nervous disorders. Other causes affect the nerves, such as disorders of the teeth, ulcerous conditions of the mucous membrane of the nose and mouth, diseases of the eye, and pains in the body. Again, colds, injuries or diseases of the skull or the brain. Pseudo-lockjaw is recognised by quick, involuntary spasm of the facial muscles, depending on the nerves. These spasms cause typical "grimaces." First the eyes blink and twitch, the nose twists and snuffles, the forehead is puckered in a frown, the mouth is distorted. In serious cases the whole face is distorted, while tongue, neck, throat and arms may also be affected. The less dangerous, but more tiresome and obstinate features, appear all at once. The attack itself is only momentary. It comes on without any known reason, or again, may be the effect of psychical conditions or bodily exertion. While in one case only a few of these attacks are seen in a day, in others they are much more frequent. One patient had as many as twenty to thirty in half-an-hour.

The treatment, to be efficacious, must seek the real cause. In doubtful cases follow the General Strengthening Treatment. Locally, massage the head and neck — and the subsequent resisting motion (turning the head while sitting, Fig. 187).

The massage may be repeated three to four times daily. The affected facial muscles must be gently stroked, pressed and kneaded. Every night apply stimulant packs to the face. 73° to 77° F., as well as to the neck, chest, shoulders, body, and calves of the legs, to alleviate the symptoms. It takes some time to effect a cure. Be patient, be persevering.

Louse, Body. (See "Head Lice.")

Lower Affusion, according to Kneipp. (See Index.)

Lower Bandage, according to Kneipp. (See Index.)

Lower Compress, according to Kneipp. (See Index.)

Lumbar Pains (pains in the small of the back) is not an independent disease, but always the symptom of further complications. It appears as the foremost and characteristic accompaniment of womb affections, in certain forms of kidney and spinal disease, and also during confinements, etc. Its cure is only accomplished by attacking the fundamental cause.

Lungs and Bronchial Tubes. — The mouth and nose cavities, the larynx and bronchial tubes and their ramifications, go to make up the respiratory passages. These passages are covered with a fine, soft, mucous membrane, and extend to innumerable little air cells in the lungs in which the virtual breathing process takes place.

The cartilaginous larynx, by means of which the voice is produced, is situated behind and under the tongue, and is connected with the trachea. At the upper opening, and lying over the vocal cords, is a self-acting lid, called the epiglottis, which prevents the food from entering the laryngeal cavity. The trachea, which on its front wall is formed of from sixteen to twenty crescentic cartilages, is a cylindrical tube, about four-and-a-half inches long and three-quarters to one inch in diameter. It is joined to the œsophagus behind, and

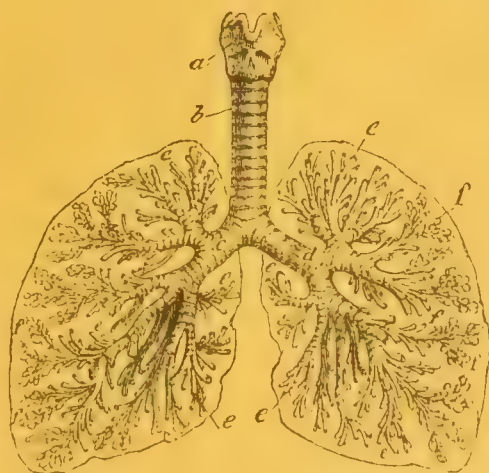


Fig. 380. Outline of the Air Passages.

a. Pomum Adami, or Adam's Apple. b. Larynx or windpipe. c. Left bronchus. d. Right bronchus. e. Branches of the bronchial tubes in the lungs. f. Inter-cellular air cells.

extends from the larynx (where it is surrounded by the thyroid gland) into the chest cavity, here it divides, in the vicinity of the third rib, into the right and left bronchus. (Fig. 380.) The right tube, which is shorter and wider than the left, and composed of from six to eight cartilaginous semicircles, extends in three branches throughout the corresponding lobes of the right wing of the lung. The left, which is longer and narrower than the right, is composed of from nine to twelve cartilaginous semicircles, and enters the

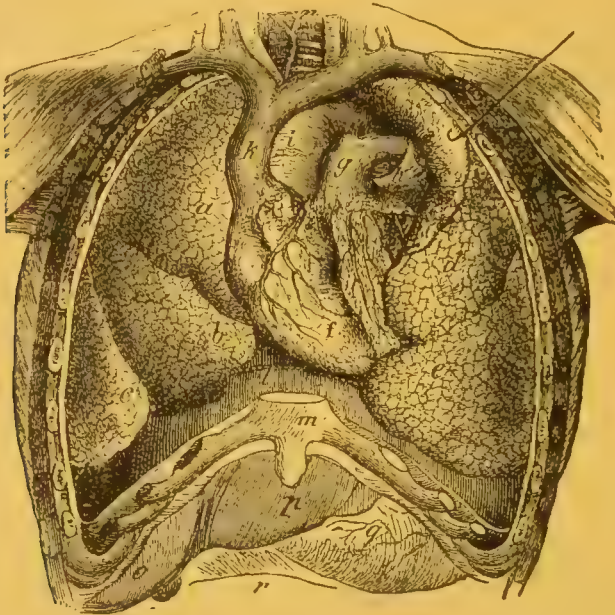


Fig. 381. Chest Cavity (Human) laid open anteriorly, showing the Lungs and Heart without Pericardium.

a. Superior, b. Middle, c. Inferior lobe of right lung. d. Superior, e. Inferior lobe. f. Coronary artery. g. Pulmonary artery. h. Pulmonary veins. i. Aorta. k. Superior vena cava. l. Diaphragm. m. Appendix of the breast bone. n. Trachea. o. Right lobe of liver. p. Left lobe of liver. q. Stomach. r. Transverse colon.

two lobes of the left wing by two branches just under the aorta. These tubes are subdivided in the lungs into (gradually diminishing) fine, reed-like ramifications (Fig. 380), to the end of which are attached innumerable lung air cells. The right lobe of the lung lies in the right side, and the left in the left side of the breast cavity (Figs. 381, 382 and 384). In the interspace between the two lobes are situated the heart, with the pericardium, the thoracic aorta, as well as the œsophagus. The lungs are two large thin-walled, elastic, conical, air-filled bags, composed of a number of the finest microscopic hollow

cavities, quite imperceptible to the naked eye. Each lung has a rounded apex, the lower part (base) on the contrary, is widened, and expands over the diaphragm (Fig. 381 l). The right lung is divided into three lobes (Fig. 381 a, b, c), the left into two (Fig. 381 d, e). These lobes are subdivided into smaller ones, which are again subdivided into little clustering cells, filled with countless nerve, lymph and capillary vessels, joined to each other by connective tissue. The lung tissue itself is a soft, loose, spongy mass, a compound of the so-called lung vesicles. Each lung is enveloped in the pleura, a thin, smooth, shining serous membrane. The inner layer (pleura pulmonalis) alone forms a completely closed covering. The outer layer is a so-called rib skin, and lines the thoracic wall, diaphragm, and pericardium. Right and left pleura compose the so-called pleural cavity. The space between the right and left pleura is called the mediastinum; this space contains the heart, trachea and œsophagus, and the large blood and nerve vessels.

Lungs, Atrophy of the; Lung Shrinking. —

When the connective tissues lying between the lung vesicles are attacked by inflammation, causing pressure and diminished circumference, the attack is termed "lung shrinking." The cases are very rare in which the disease is self-standing. It is generally consequent upon other affections, as catarrhal lung inflammation, inflammatory bronchial catarrh, diseases of the pleura, syphilis, trade diseases caused by long and continuous breathing of dust, etc. Two forms of the disease are recognised — an acute and a chronic. Their symptoms are more often than otherwise hidden under those of the fundamental cause. Physical examination of the breast gives the following results: By auscultation, a very faint breathing wheeze, sometimes bound up with crepitation, is perceived in the anatomical fluctuation of the lungs; percussion discovers a dulness, as also displacement of the normal boundary of the lungs; inspection recognises, through long-drawn inspiration, a perceptible withholding of the diseased side. According to the grade and extent of the shrinking, more or less large hollow cavities are formed in the region of the chest, and are filled up by the displacement of any of the other organs in the chest cavity, as the heart, diaphragm, the intact lobe of the lungs, etc. As lung shrinking is, for the most part, complicated with overgrowth of muscles on the right side of the heart, disturbances of the heart functions

frequently ensue, drawing further into their train dropsical swellings of different parts of the body, etc. Difficulties of breathing, as also coughing, are seldom absent.

The treatment must be directed to the removal of the fundamental cause. The General Strengthening Treatment, with special regard to the treatment prescribed for "Lungs, Inflammation (Catarrhal) of the," comes first and foremost. Deep, one-sided respiration (Figs. 227 and 228), and "Breathing Exercise" are most important curative factors. Diet must in every case be mild, simple and very digestible.

Lungs, Congestion of the; Hyperæmia of the Lungs.—In most cases congestion of the lungs is acquired



Fig. 382. Transverse section of the Human Chest Cavity.
a. Left lung. b. Right lung. c. Pleura. d. Chest wall: the ribs have been cut through.
e. Branches of the windpipe, which represent the root of the lungs. f. Heart.

through other ailments, but it is also frequently to be met with as a primary disease. It results either through abnormal increase of blood to the lungs, or in obstruction within the pulmonary organ itself. The former condition arises in consequence of precipitate activity of the heart, brought on, especially in youth about and after the age of puberty, by abnormal physical exertion, misuse of alcohol, high living, physical affections, etc., also by inspiration of dust, poisonous air, and gases (trade injuries), as also of extremes of hot or cold air—for example, in Russian steam baths or Roman-Irish baths, in factories, etc., or deeper inspiration during mountain climbing. The latter condition is the result of certain forms of heart disease, or decreased activity of

the heart's action. The symptoms of existing lung congestion are palpitation, respiratory difficulties (shortness of breath), tension and pressure of the breast, sometimes coughing, etc.

The treatment must have an eye to the removal of the causative or fundamental trouble. The General Strengthening Treatment is specially requisite, as, taken in conjunction with half-baths at 83.75° to 88.25° F., and affusions of the back and breast, it works wonders in conducting the blood from the lungs. Further measures in the same direction are stimulating body and calf packs at 77° to 81.5° F., changing every two to three hours; small cold enemata at 62.5° to 68° F.; bed vapour bath (No. 4), with massage of the arms and legs in the form of kneading and pressing. Clean, pure air, and simple (for the most part vegetarian) diet, are further important curative aids. When violent palpitation is present, the treatment relative to nervous palpitation, on p. 1102, should be chosen.

Lungs, Consumption of the; Lung Tuberculosis; Phthisis Pulmonum.—Consumption is one of the greatest scourges of the present generation—over a hundred thousand fatal cases occurring yearly in England alone, and it invariably stands at the top of the mortality list of every large town. Everyone fears it, since it is thought by so many to be incurable. The very name is sufficient to cause immediate dread, all its victims being considered sure sacrifices to death. In late years no other disease has been the subject of so many investigations and discussions, and more remedies have been prescribed for it than any other in the dictionary of diseases. A great scientist, Professor Koch, who, in 1882, undertook to discover the tuberculosis, or consumption bacillus, and to solve the problem for the cure of the disease (despaired of under allopathic treatment). All the same, his experiments resulted in a wretched fiasco (p. 339 et seq.). Koch's tuberculin sank into disrepute, and German medicinal investigation was enriched by one more ghastly failure. Return was made contentedly to the injurious creosote treatment, and to the use of milk and brandy. But let me speak of the nature of this dreadful disease.

Consumption represents a kind of chronic progressive inflammation of the lungs, not, however, subject to curative treatment, but, by pathological intervention, transformed into a decayed and festering product, eventually affecting the entire lung tissue.

Medical opinion is very diversified as to whether consumption is an infectious or inherited disease. Dr. Paul Niemeyer, the sanitary scientist, considers it rather an infectious than an inherited disease, and curable under certain hygienic conditions. The fact that tubercle bacilli are present in the lungs and expectorated matter of affected individuals does not at all furnish conclusive proof that this alone forms the cause of the disease, for it has happened, in undeniable cases of fatal consumption, that its victims possessed the tubercle bacilli neither in their lungs nor in their expectorations. Undoubtedly there must therefore be predisposition, requiring only certain external injurious influences to set the same in motion. Such are the consumption of tuberculous meat or



Fig. 383. Tubercle Bacilli.

(Greatly magnified.)

milk, vaccination, entrance into any open wound—as, for instance, in the hand—of tuberculous poisoning proceeding from ejected matter, constant inspiration of impure air, self-defilement, or immoderate sexual intercourse, frequent births, neglected or falsely-treated catarrhal or croupy inflammation of the lungs. Unfavourable climatic conditions and other injurious causes require only a small basis, in the form of either inherited or acquired constitutional weakness, to commence consumptive operations. In chronic inflammation, with its already discussed pathological changes, sometimes one, some-

times both, or preferably this or that part of the lobe or lobes, may be affected, and sometimes the disease confines itself to the apex of the lungs alone. Consumption usually is slow of development, veiling its symptoms under the cloak of other attendant ailments. It arises very often under the clinical picture of green sickness, stomach and bowel catarrh, or chronic bronchial catarrh, etc. The symptoms of formulated lung tuberculosis are the following: General loss of flesh, and debility; coughing, excretions of various quantities, colour and nature; sometimes coughing of blood, shortness of breath, quickened pulse, fever (violent fever), causing the colour to heighten, and the temperature, towards evening, to increase, and again during the course of the night to decrease; copious, sharp-smelling perspirations, setting in either morning or evening on abatement of the fever, and

considerably weakening the patient's condition; finally, pains in the chest in various parts, and of fluctuating intensity. The temper is for the most part extraordinarily optimistic, the mind clear, free, lively, and the sexual impulse generally increased. Fever, rarely abating; when the temperature is uniformly maintained at 104° F., it represents the less frequently occurring form of galloping consumption, so called, because a few months brings it to a fatal issue. Auscultation frequently distinguishes a gulping, crackling, rasping, buzzing, moist sound. Percussion produces a dulness in the parts filled with blood or exudations. Percussion on hollowed spaces, filled either with air or fluid, or both, gives out a tympanitic sound, similar to the beating of a drum. Inspection shows the form of the thorax to be mostly flat, lengthened but slightly arched; decreased breast circumference, shoulders inclined to be rounded, shoulder blades projecting from the side like wings, fallen-in (collar-bone) clavicular cavities, and a long, slender neck; during respiration, a distinct lapse of the diseased lung after the other, is noticed.

Consequent or accompanying diseases are tuberculosis of the skin, bones and joints; tuberculous diseases of the sexual organs, of the lymph glands, and mucous and serous membranes of adjacent and more distant organs. Left to itself, consumption may last several months or years ere death follows. With careful nursing, consumption can in many cases be indefinitely postponed for any period extending to upwards of ten years. When taken in its preliminary stage, consumption can be permanently cured.

The treatment must consist of the General Strengthening Treatment. The chief factor is air, and that must be fresh, by day and by night, in summer as in winter. In the latter season the room should be aired in the manner indicated in I., Chap. 38 (p. 408). Should the patient's circumstances permit, he should reside in a watering place, situated either near wood or mountain, where he can enjoy, night and day, an uninterrupted fresh air supply. During the day rational "Breathing Exercise" (p. 892) must be practised. Methodical, deep inspiration is the best medicine for a consumptive patient, but it will be a difficult task for him, as the muscles of his breast are wearing away and his lungs are weak. He generally complains that he receives only half of the air. As an aid to this, a former, but now perfectly restored consumptive, viz., Henry Simons, of Berlin, invented an instrument which

he called "Lung Invigorator." It is a small gold or silver tube, provided on one of its ends with a valve. The patient places it in his mouth, and gradually expires the air from his lungs. As soon as he has ceased the reed closes automatically, and he is obliged to draw the succeeding inspiration through the medium of his nose. This process must be repeated and gradually increased. This lung strengthening exercise may be taken during either physical or mental occupation. For further treatment, patients of strong constitution may take air, light and sun baths, carefully carried out. Bare-foot walking is also a very important curative for those of stronger constitution.

The water treatment is of secondary importance in the case of consumption. Weaker patients should take a daily wash down at 77° to 81.5° F., and dry gently, without friction, stronger ones a daily rub down (p. 451) at 72.5° to 77° F. The washing should be followed by rubbing centripetally from the extremities (hands and feet), outwards and towards the heart. A half-bath at 83.75° to 88.25° F., lasting from five to ten minutes, may also be taken two or three times weekly. For allaying of fever, moderately wrung out Scotch bandages, at 77° to 81.5° F., should be applied at night, together with stimulating calf packs at the same temperature. Stronger patients may take these packs every night, the weaker ones only twice or thrice weekly. Cold feet require hot water bottles, wrapped in damp cloths. In many cases it is advisable to apply, a few times weekly, foot-sole baths at 72.5° to 77° F., (p. 540), subsequently rubbing them dry; or a quick foot vapour bath (Fig. 127). Together with this, daily gargling every two to three hours with water at 68° to 72.5° F., should be taken. The diet should, for the greater part, be vegetarian, and consist of farinaceous milk and egg foods, fruits — either raw or cooked — new vegetables, salads dressed with olive oil and lemon juice, gruel, pulse, wholemeal bread, etc. Liquids such as cocoa, chocolate, sour milk, buttermilk, sweet milk from healthy cows, etc., may be used, but no indulgence whatever in coffee, beer, wine, cognac, and other so-called strengthening means, should be allowed. A small amount of animal food may be taken, but better none at all.

Lungs, Contraction of the Vesicles of the; Airless Lung Vesicles, Atelectasis. — Contraction of the lung vesicles and the exclusion of air, either partly or wholly, arises from various causes, which eventually lead

to a diseased condition of the lungs. These are general health decay, consumption, sickness, tumours or dropsical swelling in the chest or abdominal cavities, exudations from the pleura in consequence of inflammation, stoppage of the bronchial tubes in consequence of inflammatory catarrhal affections of the bronchial mucous membrane, etc. This abnormal condition is also noticed in a few cases at birth. It occurs in children whose birth has been attended by protracted and painful circumstances, or in those of premature birth, etc., or of very delicate constitution. Children in this condition breathe superficially, and in short, quick succession; are always inclined to a comatose state, and when they cry the sound emitted is more of a whine than a shriek. They are not capable of sucking, and generally die from excess of carbonaceous matter in the blood. Acquired lung atelectasis has also the appearance of carbonaceous blood poisoning. The sufferers breathe quickly and superficially, the face falls and takes on a pale, greyish colour, the nose sharpens, the lips become blue-white, the entire surface of the skin assumes a pale and cold aspect. Eventually it turns to emphysema, the symptoms of which have already been described. A noise resembling the crushing of crisp paper is distinguished by auscultation, and dulness of the affected parts by percussion. When the vesicles have still a residue of air, the percussion sound is of a tympanitic character (like the beating of a drum). Examination sometimes shows a falling in of the thorax on the parts affected by extensive atelectasis.

The treatment must have the removal of the fundamental cause in view, and is, in short, the same as that prescribed for "Asthma" on p. 783.

Palliative measures for the relief of difficulties of respiration should, according to individual constitution, be either full baths increasing from 95° to 106.25° F., or steam compresses applied to the breast and back, or half-baths at 83.75° to 88.25° F., together with back affusions at 68° to 72.5° F.

Newly-born children afflicted with lung atelectasis should have their soles tickled and rubbed, and slight slapping administered, in order to induce violent crying and deep breathing. Should this be unavailing, the infant's mouth should be freed from slime or any mucus swallowed during birth, and a half-bath, at 95° F., together with affusions of the back and breast at 81.5° to 86° F., given. These measures should be carried

out once or twice daily. Or they may be bathed for three to four minutes in a full bath at 95° F., then taken out and dipped several times in a ready-to-hand full bath at 81·5° to 86° F.

When they cannot suckle in a natural manner, they should be given a teaspoonful of milk, or an almond milk enema at 68° F. (p. 943). Cold feet require cautious application of hot water bottles, encased in damp cloths. This is requisite to obviate any chance of the child being burned through casual motion. It is safer to place the child in bed with its mother, in order to obtain the necessary heat.

Lung Degeneration.—Lung degeneration is a disease which has, as a result, decay and decomposition of the lung tissues. The causes lie partly in a predisposition to tissue degeneration, partly in diseases of the bronchial tubes, blood vessels of the lungs, lung tissues, etc. Also in wounds or injuries to the lungs, in consequence of external mechanical causes, etc. The symptoms are: Fever, rapid loss of strength, and discoloured, sometimes bloody, malodorous, excretions containing decayed tissue substance. The manner of expectoration is characteristic. The patient ejects mucous matter only a few times daily, and then in such enormous quantities, that the nose also is drawn into the scene of operation. Lung bleeding frequently follows in consequence of lung degeneration, which is a form of lung disease seldom met with, and, where present, occurring for the most part, in males.

Its issue is not always fatal. In good constitutions, and given a slight fundamental cause, sometimes a few weeks or months will effect a complete cure in the affected lung. The excretions become gradually less offensive (at first mattery, then slimy), diminish in quantity and finally disappear.

The treatment consists in following the General Strengthening Treatment, in which the patient must still continue in the horizontal position. Half-baths at 83·75° to 88·25° F., or trunk baths at 81·5° to 86° F., stimulating Scotch bandages at 77° to 81·5° F., and calf packs at the same temperature; aperient enemata, and hourly garglings with water at 65·75° to 68° F., mixed with fresh lemon juice, should be given.

The diet must be mild and simple, but at the same time nourishing.

Lungs, Dropsy of the; Œdema of the Lungs.—When exudation of a dropsical fluid issues from the lung

vesicles or connective tissue, the anatomical abnormality is termed "lung dropsy." Its appearance is either in acute or chronic form, occurring in a small or extensive portion of the lungs, and sometimes, though rarely, presenting a self-standing case, or, as more frequently, is the result of some other previous affection. Lung cavities are usually caused by a stoppage of the blood in the lungs, eventually leading up to congestion. Certain forms of lung affections, a cancerous dyscrasia, inflammation of the kidneys, etc., are often the immediate cause of serous exudation in the lungs. The symptoms of existing lung dropsy are as follows: Cyanosis (blueish colouring of the outer skin and mucous membranes), difficulties of breathing, feeling of constriction of the head, sickly, sleepy nature, convulsions, etc. The expectoration is extraordinarily clear and limpid, sometimes yellow or reddish tinted. In auscultation a clear, ringing, rustling noise is heard. Percussion (if the air in the lung bladders has been dislodged by exudation, and according to the extent of this anatomical change) produces a more or less dull sound. Should any air be still present in the vesicles, a tympanitic sound is given out.

The treatment must be directed to the removal of the fundamental cause. For this the application of dry packs (p. 514), should be made, at the same time placing a hot water bottle, wrapped in a damp cloth, on the other side of the patient's legs, and, of course, outside the packs. He should lie thus for from one-and-a-half to two hours, the windows of his room being open, and have a sip or two of fresh water as desired. As a cooling down (on emerging from the pack), a complete wash at 77° to 81.5° F., or a half-bath at 83.75° to 88.25° F., or a trunk bath at 81.5° to 86° F., should be taken. This procedure may be carried out once or twice daily. In many cases it is very useful to take a preliminary full bath, increasing from 95° to 106.25° F., as already frequently recommended by me, before applying the packs. Besides, during the day, continual application of stimulating trunk baths at 77° F., and calf packs at 72.5° to 77° F., changing every two or three hours, should be made. The calf packs might be allowed to remain from three to four hours. The diet should be mild, plain, and composed chiefly of vegetables.

Lung Hemorrhage.—Bleeding of the lungs never presents itself as a primary disease, but has its origin in

lung and bronchial affections, and is also consequent upon acute inflammatory affections of the lungs or their connective tissues, consumption, lung injuries (through a blow, shot, pressure, or other violence, etc.), new formations in the breast cavity, or, finally, inflammation of the veins and heart affection. When both blood vessels and tissue are ruptured, we get "acute hemorrhage of the lungs." Bleeding of the bronchial tubes may be caused by consumption, menstruation anomalies, infectious and generally debilitating diseases (blisters, measles, scarlet fever, typhus, malaria, etc.); inflammatory and suppurating affections of the bronchial mucous membrane, as well as in circumstances causing irritation of the bronchial mucous membrane, either by chemical, thermal, or physical means. (Comp. the foregoing article on "Lungs, Congestion of the.")

Bleeding of the trachea and larynx happen less frequently, and are only induced by very severe inflammatory or deep-seated suppurating processes. The bleeding either takes place suddenly, or is preceded by such ominous forebodings as excitement, disquietude, etc. (Comp. therefore article on "Blood, Spitting of.") When the expectoration is tintured or unmistakably streaked with blood, a "bleeding cough" is the designation applied to it. When the blood comes away in large quantities from the mouth, a "hemorrhage" is the distinctive appellation. Repetition of attack is as varied as the quantity of blood expectorated. The duration of single attacks in which blood is coughed up (ranging from ten minutes to several hours), is subject to many fluctuations. The percentage of cases in which immediate danger of death occurs is very small. Sometimes it is difficult to determine the source of bleeding, and the distinction between bleeding of the lungs and stomach bleeding requires discriminative investigation. Even when the characteristic distinction between lung bleeding, as shown by bright red, foaming blood, covered with air bubbles, and stomach bleeding characterised by rather dark chocolate colouring, have been borne in mind, the clinical picture has frequently been confounded, because violent blood expectoration, as is the case in lung bleeding, is in many cases accompanied by coughing. In the stomach itself an artery may burst, and bright red blood be ejected; and blood pertaining to the lungs may for a long time be detained in a phthisical lung cavity—the latter the result of festering—and then ejected of a dark, red colour, without the accompanying presence of air bubbles.

Physical examination of the chest, apart from perceptible crepitation during auscultation, generally affords no real evidence. A certain dulness, heard by means of percussion, has mostly to be set down to the account of the fundamental disease. In most cases it is best to refrain from examination of the chest, in order to prevent a possible turn for the worse, through excitement, etc., in the condition of the patient.

The treatment of lung bleeding consists in the following measures: The patient should be placed in the horizontal position, the upper part of the body being slightly elevated. The room should be cool and airy. Speaking and restless plunging in bed must be strictly avoided. The attendants should exert themselves to comfort the patient as much as possible, by regarding the bleeding as a nature-working cure, and by no means looking upon it as in the least dangerous or fatal. The proverb "The end justifies the means" here comes powerfully into force. But it should not be omitted to acquaint him, always, of course, in a modified manner, the possibilities of another attack.

The water applications consist in stimulating body bandages at 72.5° to 77° F., changing every ten to twenty minutes, together with stimulating calf, fore-arm, and hand-joint packs at 68° F. The patient's hands should be placed in as hot water as he is able to bear. Stimulating heart compresses, at 77° F., interchanged with steam compresses, should cover the whole surface of the chest.

The diet should be plain, strictly vegetarian, and taken in liquid form.

In many cases the treatment given for blood-vomiting would be applicable. When the bleeding has stopped, mild tepid bathing, trunk baths at 86° to 90.5° F., etc., should be given. Convalescence once set in, the patient should, for a long while, lead a strictly regular life (such as prescribed for in article on "The Science of Health," to be found in the greater part of the first book), to prevent recurrence.

Lungs, Inflammation (Catarrhal) of the. — Catarrhal inflammation of the lungs presents the dregs of previous inflammatory catarrhal affection of the bronchial tubes, and appears mostly in infancy and old age, seldom in the intervening middle age period. Weak, scrofulous, rickety children, and old people of corpulent build, form the great contingent of its victims. Apart from previous or

simultaneously existing bronchial catarrh, especially so-called capillary bronchitis, further infectious diseases, as whooping-cough, measles, scarlet fever, smallpox, typhus, influenza, etc., may be added as causes. Also the presence of foreign bodies in the air passages, and difficulties of teething in children, etc.

The inflammation, which is for the most part confined to small contiguous parts of the lung lobes, consists in the exudation of a fluid which fills up the little vesicles in the lungs. The symptoms of inflammation of the lungs often lie hidden behind those of the fundamental disease. In other cases, two forms, an acute and sub-acute, may easily be distinguished. The former generally lasts from one to four weeks, and is accompanied by more or less high grade fever. The latter, on the contrary, bears on the face of it a much less severe character.

A somewhat sure sign that bronchial catarrh has passed into acute catarrhal inflammation of the lungs, is by increase of the temperature to 102° to 104° F., lasting for several days. The sub-acute form, on the contrary, seldom shows a rise of temperature above 102° F. At the same time a dry cough, pressure and tension, as well as pain in the chest, is generally present. In the case of children, the pulse frequently beats from 180 to 190 times a minute, and in the same time the respirations are from ninety to a hundred. Auscultation discovers diminished respiration and crepitation; percussion, only a typical dulness, when the case applies to an even more extensive field of operation. Frequently acute or sub-acute forms are, on account of neglect or false treatment, transformed into chronic catarrhal inflammation, on the basis of which such diseases as consumption, lung degeneration, shrinking (atrophy) of the lungs, etc., may be developed. Should an unfavourable course, and death, take place, it is generally due to excess of carbonic acid in the blood, or to heart paralysis.

The treatment is similar to that prescribed for "Catarrh, Bronchial," (p. 909). A moist medium heat, 65° to 75° F., should be preserved, the room kept well ventilated, and special attention paid to the rules of sick nursing. (II., Chap. 38.) Specially efficacious half-baths at 90° F., gently decreasing to from 86° to 83° F., should be taken morning and evening, lasting from ten to fifteen minutes.

Lungs, Inflammation of the; Pneumonia (Acute).

— One of the most important and frequently occurring diseases in the whole field of curative science is acute inflammation of the lungs. It is severe progressive inflammation of the lung vesicles and finest bronchial veins, whereby the exudation becomes a dropsical fluid, filling the lung vesicles and expelling their air contents. The inflammation sometimes confines itself to certain parts of a lung lobe, or extends its operations throughout its entire surface; frequently it seizes a whole lung, and sometimes operates throughout both lungs alike. The causes are usually cold, but predisposition plays an important part, and is generally to be met with in a weak or non-resistive constitution. Badly fed, poor blooded, fatty disposed, gouty, puffed out, scrofulous, tuberculous individuals, or those who lead unhealthy lives; great smokers and drunkards, aged people, etc., are the first to succumb to it. The greatest number of cases occur in spring, during the months of March and April, as also in harvest and early winter. Superstition has it that the disease finds its subjects in those of sound, robust health. Two forms are distinguishable—a primary croupy lung inflammation, appearing from the first as a primary disease, and a secondary form of the same, arising in consequence of constitutional diseases (cancer, diabetes, etc.); or from infectious diseases, as influenza, erysipelas, measles, scarlet fever, typhus, smallpox, etc. The symptoms of croupy lung inflammation are as follows: In the greatest number of cases, initiatory cold shivering of intense and sudden appearance, lasting a short time, but sometimes several hours. This over, burning heat follows, and at the same time general languor, debility, pains in the limbs, pressure and pain in the head, loss of appetite, intense thirst, diminished urinary secretion, dry skin, rapid pulse, coughing, etc., as also more or less violent pains in the chest (proceeding from the inflamed pleura), and respiratory difficulties. The excretions show, for the most part from the inception of the disease, a reddish colouring, or are streaked with blood; in the further course—perhaps the second or third day—they take on a rusty appearance. Respiration is only superficial, and for the most part irregular; it is sometimes very precipitate, and accompanied by a hissing, whooping, and anxious condition. The pulse of adults, at the height of the inflammatory process, shows a return of a hundred and ten to a hundred and twenty beats in a minute. When this figure

is exceeded, the life of the patient is in danger. In the case of children it is even greater — amounting to from a hundred and thirty to a hundred and eighty, or even more beats a minute. Their average amount is a hundred and forty a minute, but that is a long way off from threatening a fatal result. A regular, strong, full pulse offers more chance of a favourable issue than an irregular, weak, low one.

Pain on the affected region is increased by the effort of coughing or breathing. They compel the patient to lie continually on one side. In the night delirium frequently sets in. Children usually suffer from convulsions and croup. Auscultation shows, both in the preliminary and final stages, a peculiar crepitation, a kind of veritable crackling, that is only heard in inspiration. Percussion emits, in the beginning and towards the end of the disease, a tympanitic sound, by which, in the height of the disease (the stage of the inflammatory exudation), a dulness of the affected parts is noticed. Examination discloses the healthy and affected sides in their relative conditions—the patient forbearing to breathe through the left side, in order to obviate painful effects.

In palpitation the heart beat is somewhat stronger than in its normal condition, but is always in its normal position. The inflammation most frequently seizes the under lobe of the right lung (Fig. 381 c). Then, generally, the under left lobe (Fig. 381 e), after which the middle right lobe (Fig. 381 b) follows, and last of all the two upper lobes of both sides (Figs. 381 a and d.).

Change for the better generally appears after the lapse of the first week, in a thorough outbreak of perspiration on the hitherto dried-up skin. At the same time the temperature of the body sinks, either all at once, or gradually, in the course of one or two days, to its normal figure.

When perspiration sets in, the patient generally falls into sweet refreshing sleep, from which he awakes strengthened and full of life. The cure is generally effected in from two to three weeks, when the patient enters the convalescent stage. But it should be mentioned that croupy lung inflammation is frequently complicated with inflammation of the bronchial mucous membrane, and also frequently with that of the pericardium, as well as palpitation. Frequently inflammation of the stomach and intestinal canal, kidneys, brain membranes, as well as congestive jaundice, are seen as accompanying diseases.

The course of inflammation of the lungs is for the most part favourable, unless serious accompanying symptoms exert a contrary influence. Heavy drinkers attacked by this disease rarely recover.

The treatment for inflammation consists generally in that prescribed for "Fever." First and chief are half-baths at 63.75° to 90.5° F., together with affusions at 77° to 81.5° F., lasting from about four to ten minutes. The baths may be taken about twice daily, and preferably they should be preceded by three-quarter packs at 77° F., in the space of from one to two hours.

It is obvious that every symptom and each case should be independent, and each individual case treated on its own merits. Application of stimulating, moderately wrung out breast packs, at 77° to 81.5° F., together with stimulating body bandages at 72.5° to 77° F., and stimulating calf packs at 68° to 72.5° F. are also recommended. The bandages should never be removed from the body in a dry, but always in a moist condition, and fresh ones applied after the parts covered have been quickly bathed at 77° F. Instead of the body and breast packs a trunk bandage may be chosen. Cold feet require the application of hot water bottles, encased in wet cloths. For the removal of any constipation or diarrhœa, as the case may be, enemas at 77° F. should be taken, three to four daily, together with subsequent small cold ones at 62.5° to 68° F. From every one to two hours the patient should gargle with lemon water at 68° F. When the turning point has been reached, mild bed vapour baths (No. 3 or 4), and, in the convalescent stage, indifferent baths, with complete washings at 77° to 81.5° F., trunk baths at 81.5° to 86° F., should be taken.

In the fever stage the diet should be strictly simple, and consist of lemon squash or raspberry lemonade, stewed fruit, oat or barley meal gruel, milk, almond milk, rice milk, etc. I here emphatically caution you against the application of ice-bags in cases of inflammation of the lungs (see p. 246). As after-treatment, I recommend Gymnastic Respiratory Exercises (comp. article on "Breathing, Systematic"), as well as the execution of one-sided deep breathing (Figs. 227 and 228), in order to restore complete functional power and strength to the affected lung. The General Strengthening Treatment should be persevered in for a long time after favourable cases.

Lung Vesicles, Enlargement of the; Vesicular Emphysema. — When the lung vesicles (bladders) undergo continuous expansion, their elasticity is damaged, their walls become loose, thin, and degenerate, and the change so effected is termed “emphysema of the lungs.” Many causes are attributable to this. It is partly the result of interrupted nutritive supply to the lung bladders, through old age, or

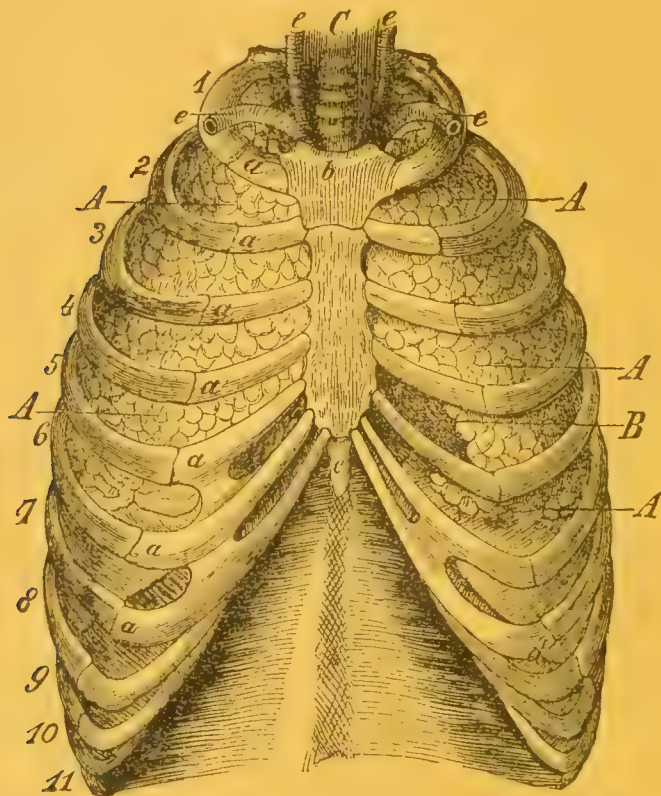


Fig. 384. Human Chest Cavity and its Organs.

1—11. Ribs (the twelfth rib is not seen). a. Rib cartilage. b. Breast bone (sternum). c. Breast bone appendix. e. Blood vessels of the neck. A. Right and left lung. B. Heart. C. Trachea.

chronic tracheal catarrh; partly by incessant over-exertion in the process of respiration, which frequently occurs before outbreak of disease, and is accompanied by violent fits of coughing. The following also plays an important part in the causative formation of emphysema of the lungs: Climatical influences, residence in cold regions, trade injuries, playing wind instruments, bearing heavy loads, continual physical

Plate VI.

Fig. 1. Scaly tetter. (Psoriasis.)

Refer to text on page 1304.

Fig. 2. Itching tetter. (Prurigo.)

Refer to text on page 989.

Fig. 3. Ringworm. (Herpes tonsurans.)

Refer to text on page 1116.

Fig. 4. Lupus.

Refer to text on page 1215.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

over-exertion, constant weeping or singing, lung wounds, contraction of the air passages, etc. More or less prominent subjective signs of existing emphysema are difficulties of breathing (shortness of breath), panting, craving for air. In long-standing cases circulation disturbances ensue, through gradually increasing overgrowth of the muscles of the heart (p. 1097). This entails further complications, such as enlargement of the liver, dropsical swelling of the feet and stomach, bowel catarrh, hemorrhoids, congestion of the head, giddiness, dull feeling in the head, "seeing stars," noises in the ears, diminished urinary secretion, and a number of other subsidiary ailments. Concerning physical signs: by attentive listening (auscultation) we discover an extremely low, well-nigh imperceptible respiratory sound. On percussion, the sound area of both lungs is found to be pushed downwards instead of in their normal course, running on the left with the dull area of the heart, and on the right between the sixth and seventh ribs. The percussion sound is for the most part an uncommonly deep one, resembling the sound produced by striking an empty box. Examination affords the best evidence of the existence of emphysema. The thorax appears, from all points of view, mostly like an arched cask or barrel, so that an emphysematous "habitus" is spoken of, but this particular appearance is not always to be met with, as in the case of old people, or those in whom incipient lung bladder extension, consequent upon ossification of the rib cartilages (Fig. 384 a), has taken place.

The treatment must obviate all causative hurtful influences. As lung emphysema is generally accompanied by chronic bronchial catarrh, it must correspond with that prescribed for the latter. Commendatory measures are constant fresh air, respiratory gymnastics (p. 246), massage of the breast (p. 700), and general massage, with air, light, and sun baths, etc. Besides, in reference to diet and water procedure, the prescription for "General Strengthening Treatment" should be put into requisition.

Lupus Vulgaris, or the Devouring Eruption, is the most malignant form of herpes known, and is characterised by the following symptoms: Out of insignificant, small spots, almost in the form of points, and of brownish-red colour, are developed smooth or scaly nodules of about the size of millet seeds or lentils. These coalesce, and cover portions of the skin varying in size from that of a sixpence to that of a

four-shilling piece. Not far from such a group of nodules a second one is, as a rule, formed, then another, and so on; or there may be found, between the first groups of nodules and the new ones, relatively healthy portions of dermal tissue. All these processes go on without any pain whatever.

The eruption is now either absorbed, as the result of a proper curative treatment, or, when it is neglected, forms large nodes or protuberances, which then suppurate. In this case the true skin, the connective tissue that lies under it, the soft portions of the body, the muscles, the sinews, the nerves, the blood vessels, and, finally, even the bones, are destroyed. The nose, the cheeks, the lips, the ears, the gums, the palate, and the epiglottis, are the favourite victims of this eruption; more rarely, especially at the beginning of the disease, the other parts of the body. The destruction wrought by lupus is often frightful. The whole nose may be destroyed, leaving in its place only a gaping opening, which disfigures the face terribly. Lupus may also lay waste the other, above-named, parts of the face, and of the interior of the throat, in an equally destructive manner. Limbs and organs that are attacked may become entirely incapable of function.

The originating cause of lupus vulgaris is generally scrofula, and only in rare cases syphilis, which, in popular circles, is looked upon as the sole and only cause of the lupus destructions. The treatment must be directed to the removal of the primary disease. It should consist either of a general tonic or strengthening cure, in which a prominent place is given to stimulating whole packs at 72° F., in combination with subsequent hip baths at from 77° to 88° F., or in a modified lowering cure. The local treatment should be the same as that in cases of weeping eczema.

Lying-in Period. — This is a time in a woman's life during which the great exhaustion and changes of the body that were occasioned by pregnancy and child-birth have to be made up again by bodily and mental quiet. This period of rest after confinement commences directly after the child is born, and lasts till the uterus or womb assumes the same state as that in which it was before pregnancy, and requires from one to one-and-a-half months. A great deal depends upon the individual constitution of the mother, or if it was an easy confinement (and vice versa); on whether there was improper or proper care, and whether the mother suckles the child. Mothers who suckle their children remain

in bed longer than those who do not (as a rule). During this period the female organism strives to gradually lessen the activity of the blood which was called forth during the parturition. The organism fulfils this duty with the aid of strong secretions from the inside of the uterus, the mucous membrane of the Vagina, of the uterus, the glands of the breast, and also by secretions from the skin (epidermis), and the exhalations of the lungs. The vessels of the uterus which were lacerated during the confinement continue to discharge blood after the child-birth (in a more or less fluid state), which is mixed with remainders of pregnancy products, and mucilaginous secretions, and is called the lochia. This discharge, which lasts two or three days, is of the colour of blood at first, but afterwards it has the appearance of watery blood, becoming in the end quite colourless. After about eight days have passed, the discharge becomes viscid, and in many cases looks somewhat like milk or white-of-egg. It now becomes gradually thinner and less in quantity, and when three or four weeks have passed it leaves off flowing altogether. The discharge, which has a peculiar smell, is more plentiful and lasts longer when the woman does not suckle the child. The glands of the breast, to which a wise Providence has given the mission of changing the superfluous constituents contained in the blood of the mother into milk, now produce milk, if the constitution of the woman is normal, for the secretion of milk reaches (as a rule) its highest point in four or five days after the birth, and generally remains at that height. In some cases a slight fever, a feeling of cold and then of heat, restlessness, great thirst, quick, full pulse, quick breathing, giddiness, etc., set in on the third or fourth day after the birth, in conjunction with a feeling of tension, pressure, and stinging pains in the swollen breasts. This state is called "the milk fever," and the cold feeling is the forerunner of more or less shivering — "the milk shivering." But the secretion of milk in the breasts is not connected with the feverish movements of the blood, the fever only represents a reaction of the irritation inside the breast glands, in which, in many cases, too much milk accumulates. Therefore the milk shivering and the milk fever, as a rule, only set in in those cases in which women do not properly suckle their children at the proper time. (Comp. the article "Suckling or Nursing Infants.") Milk fever generally lasts from ten to twelve hours, and ends with a strong out-

break of perspiration, milk sometimes running out of the breast involuntarily. If one wishes to do something during the feverish condition, use, during the cold stage, the bed vapour bath No. 4, and also apply vapour compresses to the breast glands. Each of these compresses should be left on the breast from eight to ten minutes, and should be changed and renewed from four to six times. In the hot stage, trunk baths, or else baths in which half the body is in the water, should be used (temperature from 91° to 95° F.). In the time that elapses between one bath and the next, stimulant compresses of from 77° to 81° F. should be put on the breast glands and region of the abdomen, and stimulating wraps of from 81° to 86° F. should be put on the calves of the legs. All these compresses and wraps should be renewed as soon as they get hot. If the mother cannot, or will not, for some reason or other, suckle the child, the milk secretion diminishes and stops altogether in about eight to fourteen days after the birth, which proceeding is accompanied by restlessness, light fever, loss of appetite, etc., which clearly proves that, according to the wise plan of nature, in a normal way the secretion of the milk should continue. It has often happened, in cases where women were ill-advised, and consequently would not suckle their children, on which a too rapid cooling-down of the breasts took place, causing the milk to disappear, that an accumulation of milk knots, and milk fistula (which have already been fully mentioned in the article on "Women, Diseases of"), have broken out on the breasts. The period of rest after the confinement is as important as the periods of pregnancy and child-birth. The observance of a proper diet is all the more necessary, as women are at this time very liable to one of several complaints. Above all, women should remember the old saying: "The longer a woman keeps in bed after her confinement, the stronger and healthier will she get up from it." She will do well then to keep to her bed at least two weeks, making the first attempt to get up at the beginning of the third week, that is, just at the time when the perspiration begins to lessen. Under any circumstances the woman must at least keep to her bed (and should not even get up occasionally for a short time) until the discharge has lost its blood colour for four or five days. Getting up earlier than this has cost many a woman her health and her life. As regards the care of the woman in child-bed, it is very much the same as the general care

of the sick (I., Chap. 38). The bed-room should not be too light, and should be very quiet, and, above all, well-aired daily, so that the noxious air may escape. The patient should sleep very much, and not be disturbed if it causes her displeasure. Reading and doing any kind of work with the hands in bed should be avoided; and as mental as well as bodily rest is necessary, visitors should not see her during the first week. If the womb while contracting, to assume its former size, causes pains, which are called "after-pains," one should place vapour compresses on the region of the abdomen, and at the same time use, in a mild form, the massage of the uterus mentioned on p. 698. The patient should observe a horizontal position in bed during the first week. The urine should be emptied into an urinal (Fig. 23), and the excrement into a bed-pan (Fig. 20 and 21). Both of these utensils should be warmed before being used. The fresh bed and body linen, as well as the underlays, should also be warmed before being used, to avoid catching colds. The outer sexual parts should be washed daily with water, at from 86° to 90° F. Constipation should be treated by the use of emollient enemas (77° to 81° F.), but these should never be given until four days after the birth, because the constipation of the first four to five days is a normal one, and is the consequence of the reduced diet of the patient. For the first four or five days after the birth the patient feels more thirsty than hungry, as a rule. Give her therefore mild, cooling, and chiefly liquid food (thin oatmeal porridge, barley porridge, rice porridge, etc.). When a healthy appetite sets in, one should gradually give digestible vegetable, farinaceous, and milk food. At the end of three weeks the patient may resume her usual diet (Comp. the article "Suckling, or Nursing Infants").

If the patient is very exhausted through a long and severe child-birth, one should not foolishly try to stimulate her by giving her heating and stimulating food. In this case, sleep (a long undisturbed sleep) is the best and only means of giving back the lost strength. In winter, the woman who has been confined should not go out into the open air until five or six weeks after she has left the child-bed. As regards this matter, many women are not careful enough, as in many parts people are eager to have their children christened as soon as possible after birth, therefore it has happened that an early walk to church has brought a recently-confined woman to a premature grave.

Among the most formidable illnesses to which the woman in child-bed is exposed is child-bed fever, or puerperal fever, an infectious disease that, as regards symptoms, is very similar to purulent fever or pyæmia. Child-bed fever sometimes sets in as an epidemic in large maternity institutions, but may also be sporadic in private practice, and may easily be carried (like an infectious illness) from one to another lying-in woman. The extensive bleeding parts (which were injured by the child-birth), the sore surface of the mucous membrane of the neck of the womb and the perinæum, are the regions which are attacked by the infection. The contagion either takes place during the confinement, or during the stay in child-bed, and is often caused by the hands or instruments of the doctor or midwife not having been properly cleaned. But the puerperal or child-bed fever may set in without the patient having received the infection. This is sometimes the case when different matters, which ought to have been discharged after the confinement, remain inside the womb, and then are soon in a state of decomposition. The symptoms of a child-bed fever vary greatly in different cases. As a rule the illness commences with strong lasting shivering, high fever (104° to 106° F., and even more), delirium, quick pulse, etc. The stomach is swollen and very painful, the lochia grows less in quantity, and has an unpleasant odour; it is also occasionally bloody, mixed with masses of matter-like flakes. The milk secretion soon ceases, and while there are symptoms of a severe inflammation of the peritoneum, death may set in after four or five days. The treatment for child-bed fever is the same as the fever treatment mentioned in Part. II., Sect. VI. During this exceedingly dangerous illness, one should use the following baths:

Three baths daily, in which half the body is in the water, each bath to be of a duration of from ten to fifteen minutes, while the temperature should be 86° to 90° F. Instead of the above baths one may use sitz baths (90° F.) or trunk baths (82° to 86° F.), and of which the duration depends on the condition of the patient. If the above-named baths cannot be used for some reason or other, a washing of the whole body with water of from 77° to 81° F. can be used instead. In the time that elapses between one bath and the next, one should apply cooling (73° to 77° F.) compresses to the back, or if the patient cannot bear this compress, because of the great pains in the abdomen, compresses should be put on

the breast, and packs (having a temperature of from 77° to 81° F.) should be put round the calves of the legs. The daily use of two or three emollient enemas is recommended. Each enema should be of from 73° to 77° F., and should be followed by a small cold one, 64° to 68° F. (in order to lower the inflammation). The directions given in "The Care of the Sick" hold good in every other respect (I., Chap. 38). Comp. also the articles "Peritoneum, Inflammation of the," and "Blood-poisoning."

Lymph, Lymph Vessels, Lymphatic Gland Swellings; Lymph Glands, Inflammation of the.—

Lymph proceeds from the blood. It forms the surplus of a nourishing fluid, which is exuded from the blood through the walls of its minutely-fine capillary vessels, and is not necessary for further new formation of the same. In its chemical composition lymph resembles blood, differing from it in the want of red colouring, and albuminous matter, as also by its larger water proportion. The vessels which float the lymph from all parts of the body towards the heart, and empty it into the blood before its entrance into the heart, are called "lymphatic ducts." They have, like those of the accompanying veins, rather thin walls, and in the interior a number of valves adapted for the purpose of preventing the centrifugal refuse of the lymph. The lymph glands stand in the closest relationship to the lymph vessels. The office of the former consists in converting the fluid conveyed to the gland by the lymphatic vessels into a more blood-like fluid, by mixing it with the lymph corpuscles.

The lymph corpuscles are exactly similar to the white corpuscles of the blood (Fig. 311 III.), and when they have for some time floated about as white corpuscles in the same, they change their colour to red. The lymph glands sometimes represent simple, sometimes compound glands, or combined. The former are found on the beginnings of the lymphatic vessels. The compound glands, veiled in loose, fat cellular tissue, lie close together, mostly in groups. They are present in this form on the two front sides of the neck, in the axillary cavities (armpits), on the back, the anterior of both elbow joints, in the knees, on the roots of the lungs, and in the intestines. With regard to their structure, they are roundish bodies, about $\frac{1}{500}$ to $\frac{1}{200}$ of an inch in length. On every one there are lymph vessels, bringing and taking away fluid from it.

The lymph glands swell up easily and quickly if the region in which they are situated becomes the seat of diseased, mostly inflammatory, processes. When, in consequence of this, suppuration takes place, chronic swelling of the lymph glands is the result. This, which in many cases is caused by tuberculous degeneration of the glands, is for the most part unattended by pain. At first the appearance is single, or pearl-strung fashion, from a pea to a bean in dimension. Of soft texture and movable, they become both harder and larger, and coalesce frequently in one or more new formations. In this abnormal condition they are very liable to be attacked by inflammation, suppuration, and ulceration.

M.

Maggots, Ascarides, Worms.—The maggot, worm, or ascaris, is a parasite frequently to be found in women and children. It is also frequently present in mental affections. Dogs and cats are also happy hunting grounds for the worm. The length of the male is about one-sixth part of an inch, the female doubling the proportion. Its transmission arises either through self-infection, or through an egg carried by another person. The favourite seat of the maggot is the human large intestine, the fruitful female prefers to lodge in the rectum. In consequence of their pressure in these parts of the bowels they cause a violent itching sensation in the same. In the case of girls they are found for the most part in the vagina, in boys under the foreskin.

The treatment consists in proper nourishment, and in doses of santonin. Santonin is the alkaloid of worm seeds, and when the drug has begun to take effect apply stimulating enemas at 68° to 72.5° F. The application of from two to three trunk baths at 81.5° to 86° F., and stimulating body and calf packs at 72.5° to 77° F., the former during the day, the latter through the night, and continued for one or two weeks, can be the only effectual aids in accomplishing the banishment of the parasite.

Malaria. (See "Ague.")

Mantle Friction, according to Priessnitz. (See Index.)

Massage. (See Index.)

Massage of the Abdomen. (See Index.)

Massage Accouchement. (See Index.)

Massage of the Back. (See Index.)

Massage of the Body, General or Entire Massage. (See Index.)

Massage for Diverting the Blood. (See Index.)

Massage of the Eye. (See Index.)

Massage of the Neck and Throat. (See Index.)

Masseter Muscle, Cramp of. (See "Cramp, or Spasms in the Face, Masticatory.")

Masseter Muscle, Paralysis of. (See "Face, Paralysis of the.")

Maw-worm.—The maw-worm claims kinship with the grub or earthworm. It is light-red, or whiteish, and pointed at its extremities, head and tail. The male grows to twelve to fourteen inches, the female seven to nine inches in length. In the head of both sexes there are three lips, all provided with small teeth. It is found mostly in women and children. It creates the same pains as the tapeworm. (See "Tapeworm.") A peculiar fact connected with this worm is, that while its locality by preference is the human small intestine, it sometimes takes to wandering, and may then be the cause of serious trouble. It gets into the bile duct and causes fatal jaundice; it creeps up the gullet and sticks in the nasal cavity or the eustachian tube, or from the mouth orifice into the throat, causing suffocation. It very often gets broken, and then is evacuated. The treatment is the same as for "Maggots."

Measles.—Measles is an eruptive, feverish, infectious disease, occurring frequently and for the most part among children of between two to seven years of age, seldom attacking infants, in the case of whom, the disease, on account of its close proximity to ailments of the respiratory organs, is attended by possible dangerous results. One attack successfully sustained of this infectious disease does not, as is frequently wrongly supposed, guard against the possibility of another. The incubation stage generally lasts ten days. In this time the poison makes considerable progress in the body, by development and growth. The premonitory stage does not make any material difference, except in the case of very little children, who, towards its close, show such symptoms as restless sleep, waking propensity, loss of appetite, bad taste in the mouth, coated tongue, etc. The preliminary stage lasts about three days. The children then wake up one morning, or return from school or walking, etc., with the disease thick within them. The opening

stage is characterised by fever from 102° to 104° F., cold shivers, outbursts of heat, intensified thirst, loss of appetite, vomiting, headache, etc., and to these are shortly added catarrhal symptoms, as catarrh, together with copious sneezing, coughing, avoidance of light, watery eyes, etc.; in many cases, hoarseness, difficulties of breathing and swallowing, pains in the chest, barking cough, etc. Then follows the eruption stage, lasting generally three to four days, accompanied by fever at 104° to 105° F. Beginning in the face, and extending downwards towards the feet in from twenty-four to thirty-six hours, the whole body, except the very small, normally coloured interstices, is covered with a mantle of large eruptive spots, more or less sharply defined, of the size of lentils, sometimes round, sometimes flat, deep or lightly tinted red, but becoming pale on pressure. The fever reaches its highest point when the eruption reaches its limit (blood stage), and retreats gradually in the waning stage, which generally continues for about four days. In the scaling stage this lasts six to seven days. Little scaly patches are formed on the parts of the body lately affected, and in due course the surface layers of the skin peel off in the form of very small scales. Fever has then totally disappeared.

Complications and after-diseases produced by measles are: Diseases of the eyes (conjunctival catarrh, inflammations of the cornea, iris, etc.), of the ears (middle ear inflammation, etc.), ulcerous processes on the mucous membrane of the mouth and throat cavity, inflammation of the lungs, consumption, etc.

The treatment consists in isolating the patient, and removing him into a well-aired, healthily-situated room. The sick room must be partly darkened, as light is found to be unpleasant for inflamed eyes (Comp. I., Chap. 38). The Fever Treatment, as prescribed in II. Section VI., should be chosen, and applied according to the degree of fever. Generally speaking, two half or two whole baths, or three-quarter packs, will be sufficient during the day. Stimulating throat packs, at 72.5° to 77° F.; stimulating, slightly wrung out trunk packs, at 72.5° to 77° F.; and stimulating calf packs, at 77° to 81° F., should be applied during the time between the intervening baths during the day.

In the peeling stage, one or two bed vapour baths may be advantageously given during the day. This may also be applied when the eruptions are still not quite in view.

Along with the above-mentioned, gargling with water at 62·5° to 68° F. every two hours, frequent nose rinsings at 81·5° to 86° F., as also wiping the mouth cavity and ears with soft, moist linen rags, or moist medicated lint. For the removal of constipation, aperient enemas at 72·5° to 77° F. are serviceable. Concerning nourishment, refer closely to article "Fever Treatment."

Measles, Spurious (Rubeola), is a non-dangerous complaint, with eruption on the skin, and prevails among children. It greatly resembles measles, and lasts only a few days, accompanied either by slight fever (100° to 102° F.), or without any fever symptoms.

The complaint, probably of an infectious character, has an incubation stage usually of two or three weeks, after which small spots, varying in size from a pin's head to a lentil or pea, chiefly round, show themselves on the skin, on the face, and under the hair, on the head, and extend to the body and extremities. After three or four days the spots become pale and the eruption dies out. In many instances it is accompanied by catarrhal affection of the mucous membrane of the nose, mouth and throat.

The treatment, if any is undertaken, will correspond with that for "Measles."

Meat, the Nutritive Value of. — In view of the tendency of this book, and the strict limits of space to which I am confined in its composition, it cannot of course form a part of my task to deal exhaustively with the whole question of meat as an article of human diet in relation to its nutritive value, its digestibility and its wholesomeness, either when taken alone or in combination with other kinds of nutriment. For my own part, as the honoured reader will have already gathered from the perusal of the first Chapters of this book, I incline more towards the use of vegetarian dietary, or, better, to a mixed diet, in which the chief constituents belong to the vegetable kingdom, and I therefore leave it to those who find a special calling to the task, to deal fully with the question of a meat diet as a means of human nourishment. Moreover, the reader will find, in every good or bad cookery book — except of course in the vegetarian cookery books — an appendix, in which the praises of animal food as the only means of strengthening the constitution are more or less loudly sung. At the same time, in order to save this book from incompleteness, and to serve the interests of a wider

circle of readers, I subjoin a few remarks about the nutritive value of the various kinds of animal food.

The flesh of our different domestic animals is by no means equal in value. Domestic animals that chew the cud, especially the ox and the sheep, possess, when they are well fed or fattened up, and not too old, the most wholesome flesh. The ox not only gives a very pleasant tasting meat, but also dainty fat. The chemical composition of beef is such, that one is fully justified in considering it more suitable for the diet of human beings than mutton. The different portions of meat from the ox contain, on the average, 20·91 per cent. of nitrogenous substances, 5·19 per cent. of fat, 72·25 per cent. of water, and 1·17 per cent. of ash or mineral matter. Especially high in value stands the flesh of well-fattened oxen. It exhibits, as a rule, a fine brownish-red colour, is well grown through with fat, and appears, when cut through diagonally, prettily marbled. The muscular fibre of this sort of meat is rather to be called fine than coarse, and often possesses a brilliant appearance peculiar to it, that is never seen in inferior kinds of beef.

Veal, on the other hand, is not so highly valued by most people as beef, especially when the former is too young. The flesh of calves that have been slaughtered shortly after birth is difficult to chew or to cut up small, and its consumption has only a very low nutritive value. On the other hand, the older and fat calf has a very much higher nutritive value. It may, indeed, be reckoned as equal to that of well-fed beef. The flesh of fat calves contains, on the average, 20·57 per cent. nitrogenous substances, 5·12 per cent. fat, 72·66 per cent. water, and 1·65 per cent. ash or mineral matter. In the case of young and lean calves, the nitrogenous matter in the flesh of the hind legs often sinks as low as 19·81 per cent., the fat even as low as 0·76 per cent., while the water contained rises as high as 79·05 per cent. At the same time, such meat has a pale grey appearance, and is always grown through with a watery, soft, connective tissue, whereas the flesh of adequately nourished calves has a pretty, reddish, grey appearance.

Mutton, or the flesh of sheep, generally possesses a tender, fine fibre, which can be easily masticated, and which is easy of digestion. The taste of this sort of meat is, when it is properly prepared, similar to that of venison, and is scarcely inferior to this in nutritive value. Often, however,

the flesh of older sheep is observed to possess a tallowy flavour and a disagreeable smell, whereby its value is considerably diminished.

In regard to every kind of meat, the age and race of the animals slaughtered is of very considerable importance. The chemical composition of the flesh of well-fed sheep is 14·39 per cent. nitrogenous substances, 43·47 per cent. fat, 41·97 per cent. water, and 0·66 per cent. ash or mineral matter. In half-fattened mutton the fat contents are often as small as 2·57 per cent., while, on the other hand, the watery contents rose to 76 or 77 per cent.

Horses and goats do not, as a rule, count with us as animals to be slaughtered for food, still, their flesh comes into the market in many places, and finds customers as a cheap form of food. The peculiar and strong flavour of goats' flesh makes it unedible for many people, still, the flesh of young goats (kids) is, when well prepared, very similar to mutton. Goats' flesh has, as a rule, a lighter colour than that of mutton. Horse flesh, according to its chemical composition, is just as suitable an article of human food as beef, and its sweetish taste is lost more and more when it is properly prepared. Horse flesh consists, on the average, of 74·27 per cent. water, 21·71 per cent. nitrogenous substances, 2·55 per cent. fat, and 1·01 per cent. ash or mineral matter. The colour of horse flesh is somewhat peculiar, generally dark brown; its muscular fibre fine, often brilliant, and, as a rule, not much grown through with fat. In reckoning the value of horse flesh as food, we must take into account that it usually comes from animals that are not slaughtered till late in life, and which, even up to this time, have not been in the best-nourished condition. Horse flesh from young and well-nourished animals, which are slaughtered in consequence of some accident, would not be open to objection.

Pork, or the flesh of pigs, plays an important part in the feeding of our people. In most countries of the northern hemisphere this kind of meat is eaten by preference by the working classes. This meat, however, also appears upon the tables of people in good circumstances, both in towns and in the country, and offers, in the form of sausage, ham, etc., dishes quite as tasty as they are nourishing. The flesh of lean pigs contains, on the average, 19·18 per cent. nitrogenous substances, 6·7 per cent. fat, 72·5 per cent. water, 1·1 per cent. ash or mineral matter. Fat pork contains 12·3 per cent.

nitrogenous substances, 26·2 per cent. fat, and 1·1 per cent. extractives, 60 per cent. water, and 0·6 per cent. ash or mineral matter. Very fat pork contains 13·3 per cent. nitrogenous substances, 42·5 per cent. fat, 0·2 per cent. extractives, 43·4 per cent. water, and 0·6 per cent. ash or mineral matter. Especially good is the flesh of young pigs which have been fed during their last days upon milk.

Medicine Poisoning. (See "Drug Disease.")

Megrim. (See "Headache.")

Melancholia. (See "Brain, Diseases of the.")

Membrane, Mucous, is the lining of the cavities and passages of our body which open on to the outer parts, and then take the ordinary skin covering. The mucous membrane is a tender, velvet-like skin, plentifully supplied with blood vessels and nerves. Its function is to separate a certain mucilaginous, thread-like, thick liquid called mucus. This has neither taste nor smell, and is sometimes white and clear, at others yellow and thick. It serves to preserve the moisture and absorbing powers of the surface of the membrane, as well as to protect it against chemical action.

Membrane, Mucous, Erysipelas of the. (See "Erysipelas.")

Menstruation. (See "Women, Diseases of.")

Menstruation, Ailments during. (See "Women, Diseases of.")

Menstruation, Cessation of, too soon, before Normal Time. (See "Women, Diseases of.")

Menstruation, Irregular. (See "Women, Diseases of.")

Menstruation, Painful. (See "Women, Diseases of.")

Menstruation, Proper Care of Health during. (See "Women, Diseases of.")

Menstruation, Suppression (sudden). (See "Women, Diseases of.")

Menstruation, too Copious. (See "Women, Diseases of.")

Menstruation, Want of. (See "Women, Diseases of.")

Mercurialisation. (See "Mercurial Poisoning.")

Metabolism. (See Index.)

Mercurial Poisoning, Ptyalism, Mercurialisation.
—Poisoning may be caused by mercury finding its way into the tissues of the body, and, through the skin, enter the lungs and stomach. Should poisoning occur through swallowing sublimate or chloride of mercury, raw white-of-egg must be taken to

form a chemical combination in the stomach. But of far more significance to medical treatment is the chronic mercurial poisoning known as mercurialisation. This disease exhibits a variety of forms, during the internal action of the mercury. Syphilitic patients are particularly subject to it who have undergone subcutaneous injections, or taken mercury in the form of pills. The ludicrous efforts of the "Scientist" to suppress the symptoms, instead of attending to the cause, lead to chronic poisoning of the whole organic system by one of the most dangerous poisons of pharmacy. After a scientific mercurial treatment, sooner or later, under various forms, in a stronger or a weaker degree, the syphilis will incorporate itself with the system, with other complex symptoms. To attempt to cure syphilis by mercury is like inviting Beelzebub to enter and drive out the devil, thus entertaining both poisons in the body. Mercurial taint is found among those engaged in the handling of quicksilver and exposed to its poisonous fumes, such as goldsmiths, mirror workers, etc.

The symptoms of this disorder are, at its commencement: Digestive disturbances, mercurial diarrhœa, salivation, a metallic taste in the mouth, foul breath, swelling and tenderness of the gums, inflammation of the salivary glands and mucous membranes, piercing, splitting pains in the head, extending from the back of it to the nape of the neck, and gradually throughout the whole body, especially attacking the joints and bones. In the course of the complaint the following symptoms are set up: Buzzing in the ears, optic disturbances, general muscular debility, mercurial trembling; dingy, grey, earthy complexion; dark circles round the eyes; falling out of the eyelashes, eyebrows, hair and beard; a suffering expression in the face, enlarged veins, limp and drooping condition. Finally, the weakened nerves induce increased complications, intense feverishness, extremely debilitating to the patient, and often ending fatally. In most cases the treatment corresponds with that of syphilis, consisting of a carefully-prescribed strengthening treatment for gradually modifying or removing the disease, and avoidance of all exertion. The strength should be maintained in order to nullify the strange poison. Do not believe that mercury, which, in old-standing cases, is no doubt in chemical combination with the tissues, can be dislodged from the body by cold douches or by rigorous hydropathy. The patient must be prepared to undergo a long course of treatment.

Milk. — Milk is the most nourishing of all drinks, for it contains every substance necessary for the maintenance and building up of the tissues, and in their proper proportions. Just as raw eggs, so is milk capable of sustaining life alone—a property which is not shared by any other article of food. Milk has almost the same chemical contents as blood-water (serum)—sugar, caseous fat and salts. The most important kinds of milk in daily use are cow and goat's milk. Goat's milk is richer in sugar, but poorer in casein and fat than cow's milk. Women's and asses' milk have almost the same chemical constituents. The real value of the different kinds of milk is known by their relative water proportions. This amounts in

Goat's milk to 85 per cent:

Cows'	"	"	87	"	"
Women's	"	"	89	"	"
Asses'	"	"	90	"	"

Women's and asses' milk are the sweeter. The quality of milk is dependent upon the food, time of milking, season of the year, age, breed, condition, health and treatment of the cows. Cows are milked morning and evening, and also at mid-day. Morning milk is rightly considered best, as it is richer in fat than at the other milkings. Food has the most to do with its quality. Stall feeding produces better milk than pasturing (grazing). Sweet-smelling hay is the best food for milch cows; clover and straw impregnate the milk with a bitter substance; wet, frozen, or germinating potatoes and brewers' mash produce an unhealthy state, so that the milk they give is bad and watery. Consumption of such milk causes skin eruptions. Beets and carrots improve milk by the addition of their sugar and proteids; on the other hand, turnips make it thin and watery. Quality also depends upon the treatment of the cows. The use of milk drawn from sick cows causes feverish diseases in those who drink it. Milk is frequently adulterated, generally by means of meal or water.

The following signs distinguish fresh unadulterated milk:

A drop poured in water sinks to the bottom, as good unadulterated milk is specifically heavier than water. A drop deposited on the finger-nail takes the form of a semicircle, watery adulterated milk runs off. Pure milk is white and thick, not transparent or of blueish colour. Rubbed between the fingers, it may be seen what proportion of fat it holds. When cooked, an outside skin is formed on the surface of

good milk. When it smells sweet, it demonstrates that it contains the proper proportion of sugar; when of disagreeable odour, it denotes that injurious decompositions are present. Viewed under a microscope, good milk appears something like the figure 3; adulterated, like the figure 4. When analysed, very small fat drops (fat or oil globules) are distinctly discerned, not, however, with the naked eye. Allowed to stand for a time, the largest and best of these float to the surface, and are skimmed off as cream (Fig. 5). When milk is left to stand for a few days it coagulates. The coagulation is due to the presence of milk acids, which gradually transform the sugar. Coagulated (thick) milk (Fig. 6) is a good, and, in some ailments, a very wholesome nourishing medium. In this state cheese is prepared from it. Butter is made from cream. The fluid which, in process of churning, is separated from the butter, is called buttermilk. It contains a tolerable amount of cheese-substance (casein), and on this account is not without nourishing properties. In certain diseases of the lungs, stomach and kidneys, milk frequently contributes to a successful cure ("Milk Treatment"). But for successful results, especially in the case of stomach ailments, considerable guidance is necessary, which space here forbids me to undertake.

Milk Blotch (Crusta Lactea) is an eruption on the face of young children, more particularly during the suckling period, and is characterised by small eminences and vesicles, which are soon succeeded by small sores, producing first a yellowish and then a brownish-red matter. This matter, accumulating, forms a scab or crust.

The cause of this ailment is either an inherited faulty digestion of the suckling, or mal-nutrition. The first thing, consequently, is to improve the nutrition, give attention to the skin, and fresh air in the room. It is important that the body of the child should be well strengthened, to render the state of the blood normal. Scald-head (eczema of the head) requires the hair to be closely cut, and the crusts softened with water at 86° to 90° F. (Further particulars, see "Tetter.")

Milk Fever. (See "Lying-in-period.")

Milk Fistula. (See "Women, Diseases of.")

Milk Knots. (See "Women, Diseases of.")

Milk Scab. (See "Milk Blotch.")

Miliary Tuberculosis.---Miliary tuberculosis is an acute, general disease, running an ardent course, and is the

product of tuberculous formation in the lungs or other organs of the body. People in whose organism any tuberculous taint is to be found, are specially disposed to this form of tubercular disease. The causative mediums generally are tubercular diseases; in other localisations, or inflammation of the lymph glands, knee affections, fistula formations (rectum fistula, etc.), all of which are favourable to a further extension of tubercular poisoning in the body; miliary tuberculosis is therefore always the result of self-infection. The complex symptoms are: Fever of different temperatures, heightened pulse (a hundred and ten to a hundred and thirty beats a minute), intense outbursts of perspiration, pains in the chest, coughing, sometimes blood-mingled excretions, difficulties of respiration, in many cases delirium, etc.

The diagnosis is very frequently similar to that of a violent catarrh. The disease, for the most part, takes an unfavourable course for about two-and-a-half to three weeks, and ends in death.

The treatment is similar to that prescribed for "Catarrh, Bronchial (Acute)," (p. 909).

Mineral Baths. (See Index.)

Miscarriage (Abortus).—The premature birth of the fœtus that has already died in the womb may come about in consequence of causes attached to the fœtus itself, as well as from those that have their origin in the mother. Women who have miscarried once or several times frequently retain a tendency to miscarry, and are, in subsequent pregnancies, generally disappointed over and over again in their hopes of becoming mothers. Miscarriage must be distinguished from premature birth. As is well known, normal pregnancy lasts about forty weeks, or two hundred and eighty days. The expulsion of the fœtus within the first sixteen weeks of pregnancy is called miscarriage, or abortion. The expulsion of the fœtus which takes place between the twenty-ninth and thirty-eighth week, that is to say, at a time when the child is already capable of life, is called premature birth. If, however, the fœtus is expelled (already dead) between the seventeenth and twenty-eighth week of pregnancy, then this is called premature birth.

Women most frequently miscarry during the first three months, especially in the third, or at the beginning of the fourth month, usually at the time when, in the ordinary course of events, they would expect the monthly period.

When the pregnant woman has once passed the third month, she has, for the following months, little further cause for fear, since "premature" and "untimely" birth happen with comparative rarity. A faulty position of the womb seldom allows the fœtus to come to maturity. There are also special immediate causes, such as chronic weakness in women, or acute feverish diseases; fear, anxiety, sudden fright, grief, trouble, care, or other depressing bodily and mental influences; loss of blood, violent pain, youth, inherited predisposition to miscarry, etc., which are frequent causes of abortion. Also excessive tight-lacing, immoderate sexual intercourse, faults in dietary, the partaking of stimulating drinks, sitting up all night, sedentary occupation in gloomy or damp and badly-lighted rooms, the reading of exciting books, falls, blows, slipping, dancing, riding, the taking of purgatives, etc., may also produce miscarriage. The untimely death of the fœtus and of its premature expulsion is often due to the existence of syphilis in the parents at the time of conception. Hysterical women, those who suffer from congestion in the abdomen, as well as strong young women married to weakly men, often miscarry. When the fœtus has died, it acts upon the walls of the womb as a foreign body, and the womb attempts to get rid of the fœtus by means of spasmodic contractions brought about by the irritation produced, that is to say, it attempts to expel the fœtus. The fœtus is then expelled with the accompaniment of more or less violent hemorrhage. The premonitory signs of miscarriage are as follows: Pains, drawing; weight and pressure in the iliac region, in the inguinal region, and in the thighs; strangury; feeling of cold and shivering, alternating with acute heat; exhaustion, weariness, discomfort, restlessness, fulness of the head, giddiness, attacks of faintness, loss of appetite, palpitation of the heart, sickness, disagreeable smell in the mouth, coated tongue, paleness of the face, blue rings under the eyes, etc. Then severe pains, the passing away of mucus and blood and an evil smelling fluid, sets in, and, finally, the small ovum is extruded, generally with the accompaniment of great loss of blood and violent pains. This may happen immediately upon the conclusion of the premonitory symptoms described above, or the process may last for many hours, even for several days.

The pregnant woman, who must under these circumstances regard herself as a "lying-in" woman, must go to

bed immediately upon the appearance of the first symptoms, send for the monthly nurse or midwife, and after the expulsion of the fœtus, regard herself in every way as a lying-in woman. During the process accompanying the expulsion of the fœtus, which, indeed, one may consider as a confinement, observe strict bodily rest, maintaining the horizontal position of the body; have soothing fomentations (at from 77° to 81° F.) on the abdomen from the navel downwards, in alternation with stimulating fomentations at from 68° to 72° F., laxative enemata at 77° F., and, in fact, follow the general rules given in the article "Birth" (or parturition). The prevention of miscarriage requires a cautiously conducted Strengthening or Tonic Treatment, and also, according to Thure Brandt, in many cases the application of massage of the abdomen. It is therefore advisable, before commencing treatment for the removal of a predisposition to abortion, to seek the advice of an experienced Natural System physician, who should then lay down a strict programme of treatment in accordance with the idiosyncrasies of the patient and the exact circumstances of every individual case. Still, I ought not to miss giving at least the following important instructions: Women who have once miscarried must, for at least half-a-year, entirely avoid sexual intercourse; must carefully guard themselves against every excitement of the blood or of the nerves; must, when they have become pregnant, entirely avoid sexual intercourse during the first months, and at the period when they would otherwise menstruate, observe the horizontal position, resting in bed; must take care to keep the bowels open daily, by means of enemata, trunk baths, and nightly, stimulating abdominal fomentations at from 77° to 81° F. Partake of a very easily digested diet, and every day take open-air exercise in accordance with their strength.

Moist Tetter. (See "Eczema.")

Monthly Purification. (See "Women, Diseases of.")

Moor Bath. (See Index.)

Morbus Maculosus, Purpura; the Disease of Blood Spots. — This is a condition in which blood spots or blood stains appear on different parts of the body. These spots may vary in size from that of a farthing to that of a five-shilling piece, or somewhat larger, and vary in their appearance, showing variations of colour from a bright red to a blue black. Later on these blood spots assume a

greenish-yellow colour. The causes of this disease are based upon a great liability to rupture of the walls of the blood vessels, so that, where this condition is present, hemorrhage or bleeding of the mucous membranes of the mouth and nose, the lungs, etc., are of frequent occurrence.

As this disease generally has, for its immediate cause, a course of life contrary to the laws of nature—bad air, unsuitable food, the long-continued breathing of bad air, the lack of bodily exercise, and many similar causes—it is advisable, in order to remove it, to adopt a strictly natural mode of life, combined with the General Strengthening or Tonic Treatment, carried out in a mild form. Cold water applications are not suitable, but what is probably most advisable, is good and non-stimulating food, combined with light and air and sunlight baths, followed by hip baths taken at a temperature of from 84° to 90° F.

Morphia Poisoning. (See "Drug Disease.")

Mouth Bath. (See Index.)

Mouth Catarrh; Inflammation of the Mucous Membrane of the Mouth Cavity.—Mouth catarrh arises, as a primary disease, from the use of too hot, too cold, or too highly-spiced foods, or from diseased, hollow, sharp-pointed teeth, also from tobacco (smoked or chewed), alcoholic excess, quicksilver poisoning, iodide and bromide of potassium, arsenic, lead, etc. Secondary mouth catarrh is either consequent upon catarrhal affections of adjacent mucous membranes (of nose, jaws, larynx, etc.), or the accompanying symptom of constitutional disease, or of general diseases (infectious diseases) attended by fever. The inflammation is characterised by redness and swelling of the affected parts. There is also a sense of tension, burning and dryness in the mouth cavity. Infants, who readily acquire mouth catarrh through decomposed milk accumulation in the mouth cavity, announce its appearance and prevailing presence by repeated incapacity in holding the nipple after they have begun to suck. Further symptoms of mouth catarrh are coated tongue, bad, sticky, bitter, insipid or slimy taste in the mouth, bad breath, and sometimes expectorated matter. The duration of the disease is from eight to fourteen days. When neglected, catarrh easily becomes chronic.

The treatment must have future non-recurrence in view. The most important water application is mouth baths (p. 544), taken every one to two hours. In the case of infants, their

mouths should be wiped frequently with fine moist linen rags, or moistened medicated lint. No time should be lost, after suckling, in cleansing the infant's mouth thoroughly. More severe cases require the application of stimulating neck, body, and calf packs. In chronic mouth catarrh, fresh lemon juice should be added to the bathing water.

Mouth Cavity. (See "Digestion, Organs of.")

Mouth, Inflammation (Gangrenous) of the Cancerum Oris, a gangrenous inflammation of the mouth, is a disease of a cancerous type, and of the most painful character. The cause may be chronic mercurial poisoning, or climatic influence, but it has also, in some cases, set in after patients had recovered from a serious infectious illness, such as scarlet fever, typhus fever, smallpox, measles, etc. This dreadful disease generally attacks children between the ages of two and fourteen years. The illness is ushered in by a very strong and offensive odour in the patient's mouth, and a great flow of dusky, dirty-looking saliva from the mouth. About the end of the first week of the illness a purple spot appears, either on one or both of the cheeks, or on the lower lip; this spot, while increasing in size, is soon covered by a blackish scurf. The scabs soon fall, leaving an opening in the cheek, through which one may see the exposed, blackish jaws, and the teeth bereft of their gums. Besides this, there is, while the disorder runs its course, great exhaustion, high fever, and the stools have an unpleasant odour, caused by the swallowing of some of the exudation in the mouth. The disease lasts about two or three weeks, ending, as a rule, with death.

The treatment should chiefly be calculated to remedy the great bodily weakness of the patient. The patient should have two or three full baths daily, each bath to be of from twenty to twenty-five minutes' duration; or he could have one or two mild bed vapour baths instead (No. 3). The diet should be mild, cooling, and strictly vegetarian. As regards the local treatment of the disorder, one should follow the direction given in the articles "Mouth Catarrh" and "Wounds." The rules set down in the article "The Care of the Sick" (I., Chap. 38) should be followed.

Mouth, Sore. — Sore mouth is a disease of the mouth cavity, in which the mucous membrane inflames and presents an eventual appearance of sores and inflammatory decay.

Scrofulous and rickety children, and poor-blooded, badly fed, cachetic adults, are the chief subjects of attack. Quick-

silver poisoning also frequently produces sore mouth. As to local symptoms, in the initiatory stage, generally swelling of the gums on one side of the lower jaw takes place. This swelling shows the inflammatory colouring, and bleeds easily, and in a few days is changed into one or more sharply-defined, deep sores, and, retaining its seat on the tooth, gradually extends its operations, till, in the worse cases, it reaches the posterior surface of the gum. The teeth, on account of the surrounding decay, are laid bare and loosened, so that they easily fall out. Frequently the suppurating process extends to the lower jawbone, the sides of the tongue, and mucous membrane of the lips and cheek. Along with these objective symptoms, constant malodorous, discoloured expectorations, pains in the affected mouth region, chewing and swallowing derangements, sometimes slight fever and general decay, go hand-in-hand.

The treatment corresponds with that of "Mouth Catarrh." (Refer to this.) Besides this, for removing the expectorated matter and stimulating the executive organs, steam vapour baths Nos. 3 or 4, trunk baths, stimulating neck, body and calf packs, should be made use of.

Movable Kidneys. (See "Kidneys, Diseases of.")

Movement, Advantages of Bodily. (See Index.)

Mucous Hemorrhoids. (See "Hemorrhoids.")

Mumps. Parotitis.—Mumps may be a primary independent disorder, or a secondary one, resulting from other illnesses. Primary mumps ranks among epidemics, occurring principally in spring and autumn, and may be the herald of acute infectious illnesses, diphtheria, measles, scarlet fever, etc. After a short premonitory stage, of which the main features are weariness, want of appetite and feverishness, it sets in with a swelling of one, generally the left, parotid gland. The swelling pulls and draws, and hurts when the head is turned, and in chewing and swallowing. It gradually increases, is hard and red, and the skin is glassy and stretched. Later on it extends to the other side of the neck. The sufferer can neither eat nor work his jaws, nor move his face, and the countenance thus assumes a stupid, dull expression, which has given the mumps many a comic nickname. Speech and the taking of food are very difficult. The membranes of the mouth and throat, the tonsils and uvula, are attacked, and the consequence is sometimes an offensive smell in the mouth,

and increased flow of saliva. The accompanying fever is not serious at all, and children's temperature seldom exceeds 104° F. Mumps last about ten days. Complications and subsequent complaints attack the neighbouring organs, sometimes more remote ones. But I cannot discuss these here for want of space.

Secondary mumps generally follows some other serious complaint, and is confined to the glands of one side of the neck. The swelling is round, stretched tightly, fluctuating, red, most painful, and inclined to suppuration. If this goes on, an abscess forms either outside on the swelling, discharging there, or the pus forces a way for itself inwards, in to the ear passages, gullet, or windpipe, and breaks out at the base of the neck. The discharge depends upon the cause of the disease, and is offensive and discoloured, and generally contains decayed tissue. The secondary form is likewise dependent in its duration, but mumps last on an average two-and-a-half to three weeks.

Treatment of primary mumps should be as follows: Either one or two bed vapour baths (Nos. 3 or 4) a day, or a chair or cabinet vapour bath; frequent enemas (72° to 77° F.), irritant packs on the neck, body, and calves by day and night. As long as the mouth can be opened, rinse it frequently with water (68° F.). Morning sponge baths (77° to 81° F.) and neck massage twice a day complete the prescription. The diet is plain and fluid. The treatment of secondary mumps is the same, always supposing it is compatible with the main disorder. It may be rather more energetic locally. Lay upon the swelling thick stimulating compresses (68° to 72° F.), renewing them as required. The woollen covering is described under "Bandage," and is a large three-cornered cloth, covering the compresses completely. Syringe the ears frequently during the day with water at 77° to 81° F., and put a piece of pure cotton wool in the ear afterwards. To facilitate the suppuration, lay a damp compress once or twice a day on the swollen glands, six or eight in succession, changing every eight or ten minutes. Instead of these, the Malten vapour douche (Fig. 133) or head vapour baths (Fig. 131) may be used for clearing the swelling during the process. If an opening has appeared, use the surgical bandage described under "Wounds," and compare this with the note on p. 914.

Mumps. (See "Scrofula.")

Muscle, Muscular Tissue, Muscular System. —

Muscular tissue is formed by muscular fibre, and sometimes found in thicker, sometimes in thinner groups (muscular bundles and little bundles), all joined together.

This tissue is permeated by a large quantity of nerves and blood vessels, and the interstitial parts are occupied by fat and connective tissue. Various combinations of the muscular fibres form the different muscles. These have the appearance of the soft, moist, red, fibrous mass, which is termed "flesh." The moisture oozing from the flesh is the "flesh juice." The muscles, together with the bones, lend form and rotundity to the body, and they are also the chief constructive material from which the walls of the larger cavities, securely surrounding the nobler organs, are composed. The chief work of the muscles consists in motion, which takes place in and outside the body. Movement in the human organism is either voluntary or involuntary. The voluntary motions are subject to the will, the involuntary motions are not.

Our limbs are set in motion according to our pleasure, but the heart, blood vessels, stomach, bowels, bladder, etc., perform their movements without our aid—they move involuntarily. The muscular fibres which cause either voluntary or involuntary motion show several diversities in reference to their structure.

The fibres of a voluntary muscle appear, when placed under a microscope, in transverse stripes (Fig. 385). They are therefore termed "striated muscles." They are situated all over the body, where energetic movements are performed by the muscles. The striated muscles form the dark red juicy flesh. The involuntary muscles, when placed under the microscope, have a smooth appearance (a smooth surface). They are termed "unstriated." Their colour

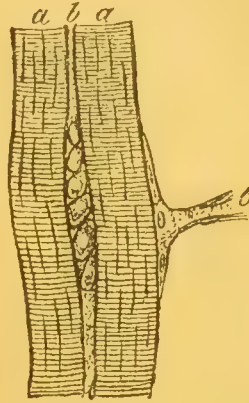


Fig. 385. Section of Striated Muscular Fibre.

(Greatly magnified.)

- a. Muscular fibres. b. Fat cells and Connective tissue. c. Motor nerve attached to a muscular fibre.



Fig. 386. Cell of Unstriated Muscle Fibre.

(Greatly magnified.)

is light red. The unstriated fibres are found in the skin, in the urinary passages; they form the walls of the digestive canal, from the œsophagus to the abdomen downwards, and the wall of the medium and finest blood vessels. They lie in long circular sections, and also in transverse double layers, along these and other parts of the body, and are composed of long, spindle-formed cells (Fig. 385). The heart, as an involuntary organ, forms an exception with reference to the formation of its muscles. It is formed of striated instead of unstriated fibres.

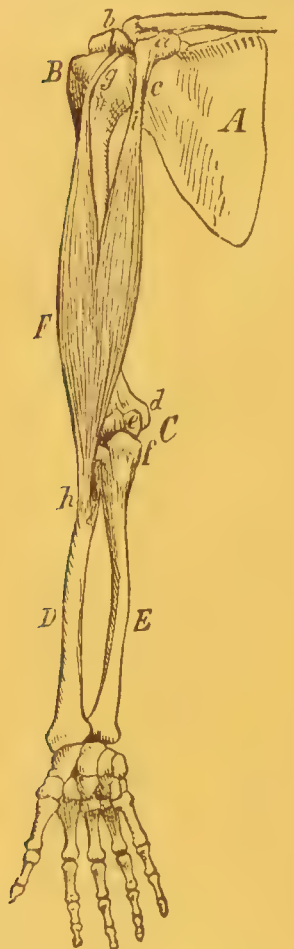


Fig. 387. The Biceps.
(A Fore-arm flexor muscle, stretched [extended].)

A. Shoulder blade and coracoid process: a. Acromion process; b. Cavity for shoulder joint. B. Head of the humerus. C. Elbow joint, with inner condyle of humerus: d. Radial head; e. Of the humerus and upper part of the ulna. D. Radius. E. Ulna. F. Biceps, and its two attachments above, and a tendinous insertion below into the radius h.

There are further distinctions of form, as broad, long, round, etc., muscles. According to the kind of motion carried out by the muscles, together with the bones, such is their designation: As a flexor—a muscle bending two bodies towards each other; extensor—one capable of expanding the parts attracted; adductor—drawing one part of the body to another; abductor—drawing one part from the middle line of the body towards one side; rotator—a muscle turning half-way round itself, or any other part of the body, in an inward, outward, backward, or forward direction. The most wonderful peculiarity of the muscular tissue is its aptitude for contraction and expansion. Motion is the cause of contraction, in which condition the muscle appropriates in breadth what it loses in length. For example, a muscle attached to the fore- as to the under-arm, approximates both those parts in the act of contraction (Figs. 387 to 388). Strength is dependent on the breadth or length of a muscle, as testified by contraction. The stronger the

muscle, the larger the weight it can raise to a certain height. The longer it is, the higher it can raise a certain given weight.

The muscles get fatigued through very oft repeated contractions, but find strength in rest. Muscular activity is maintained by aid of the nervous system. The influence that effects the contraction of the muscles consists in an impulse, and this sets the muscles in motion.

The peculiarity of the muscles in transforming impulse into action is termed a stimulating condition of excitement. The voluntary muscles, whose motions are subservient to the will, are connected by nerves (motor nerves) with the brain, where the will is seated. The involuntary muscles, on the contrary, are in connection, by means of their nerves, with

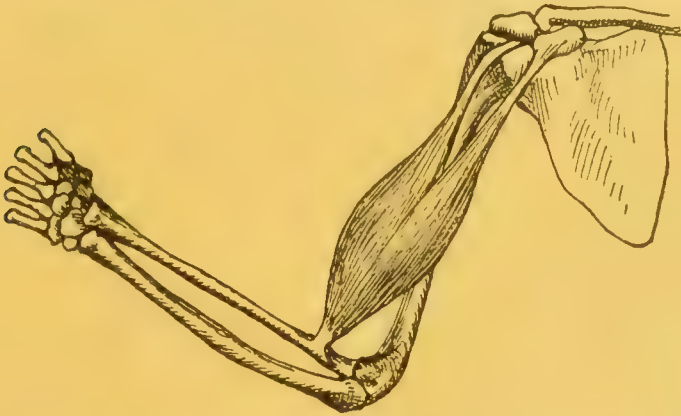


Fig. 388. The Two-headed Upper Arm Muscle (Biceps), shortened (flexed).

the spinal cord or nerve ganglions, and therefore can never be capable of performing a voluntary contraction. The muscles are nourished by the blood, and are conformable to its quality. Prolonged inactivity weakens the muscles, and renders them loose, withered, and lean; over-exertion also weakens, and sometimes even brings them to a state of paralysis. On the other hand, moderate exercise enlarges, strengthens, and solidifies their tissues. The appellation of the several muscles of the head, trunk, and limbs are to be found on Figs. 389 to 391.

Muscular Debility is the result either of over-exertion or prolonged inactivity.

The treatment in the former consists of absolute bodily rest; in the latter, of the General Strengthening Treatment, massage, and the very important curative factor, hygienic gymnastics, constitute the requisite treatment.



Fig. 390. Muscles of the Arm.
Anterior surface.

1. Deltoid muscle. 2. Biceps muscle.
3. Flexor muscles of the hand and fingers.
4. Supinator longus muscle. 5. Tendons
of the digital flexor muscles. 6. Muscles
of the thumb-ball.

Fig. 389. The Muscles on the anterior surface of the Head and Trunk.

1. Head. 2. Face. 3. Neck. 4. Chest. 5. Abdomen. 6. Pelvis. 7. Thigh. 8. Occipito frontalis muscle (frontal portion). 9. Temporal muscle. 10. Orbicularis palpebrarum (sphincter muscle of the eye). 11. Sphincter muscle of the mouth. 12. Masseter muscle. 13. Nasal muscles. 14. Zygomatic muscles. 15. Sterno-cleido-mastoid muscle (for bending the head forward). 16. Clavicle (collar-bone). 17. Pectoralis major muscle. 18. Pectoralis minor muscle. 19. Oblique externus muscle. 20. Transversalis muscle. 21. Intercostal muscles. 22. Abdominal ring. 23. Femoral canal. 24. Sartorius. 25. Adductor muscles.

Muscular Hypertrophy; Excessive Muscular Nourishment; Muscular Overgrowth, apparent.—

Apparent muscular overgrowth generally happens to children at the age of from five to ten years, and especially those children who inherit a large amount of foreign matter. The symptoms are as follows: Enlargement (in the initiatory stage) of the affected muscles; unsteady walking or running, lassitude, pains in the muscles, etc. For the most part the lower leg muscles begin first to enlarge, then those of the upper thigh, and lastly those of the abdomen. The muscles of the arm and back present a striking contrast to these by their leanness and shriveling. The affected thigh and abdominal muscles feel tender and spongy; their outer skin looks cold, pale, and often blueish and marbled.

The treatment consists in the application of the General Strengthening Treatment.

Muscular Paralysis. (See Index.)

Muscular Rheumatism. (See Index.)

Muscular Wasting; Muscular Atrophy.—Muscular wasting represents a chronic disease of painless course, generally only affecting single parts of the muscular system. The muscles of the lower extremities, the thumb and deltoid muscles (Figs. 390, 391) are most frequently subject to wasting. The muscular fibres become degenerated and ratty; connective tissue fills up the interstices to excess, thereby causing overgrowth in the normal muscular tissues. The muscles then become thinner and weaker, and eventually are unable to perform their accustomed duties. The causes of this progressive



Fig. 391. The Muscles on the posterior surface of the Leg.

1. Gluteus maximus muscle.
2. and 3. Flexor muscles.
4. Muscle of the calf of leg.
5. Achilles tendon. 6. Os calcis.
7. Internal ankle. 8. External ankle.

muscular atrophy are, in many cases, the result of acute infectious or constitutional diseases, followed by a faulty composition of the blood and juices.

The treatment must be directed to the removal of the fundamental cause. In cases where uncertainty exists as to this, the General Strengthening Treatment should be adopted.

Myopia, or Shortness of Sight. (See "Eye Diseases.")

N.

Nape and Throat Pack. (See Index.)

Navel Rupture. (See "Rupture," p. 1312.)

Navel Separation. — The separation of the newly-born child from the mother is carried out as follows: After

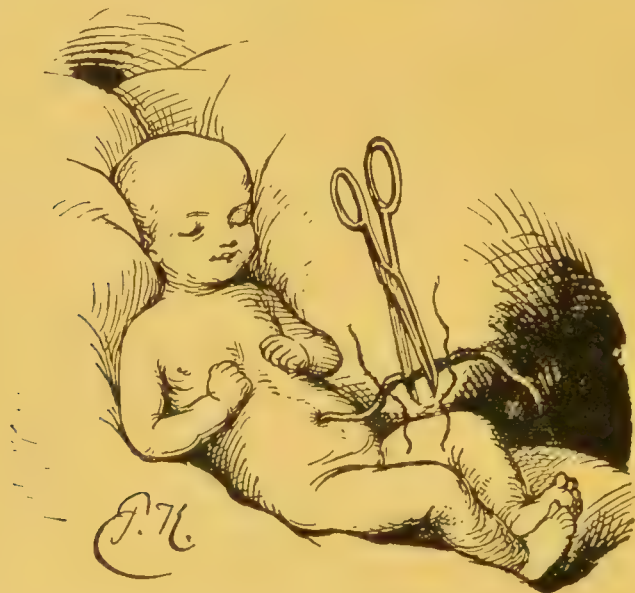


Fig. 392. Separating the Cord.

the child has left its maternal home, and the umbilical cord (or navel cord) has ceased pulsating, it is tightly tied around with cotton, about three to four inches from the abdomen of the child. This prevents any more blood flowing to the child. About two inches from this ligature, further from the child and towards the mother, tie another similar one tightly around the cord, which should now be cut through with a pair of scissors midway between the two ligatures, as shown in Fig. 392.

A few days after birth the dried end of the cord attached to the child falls off. Until this happens the end of the cord attached to the child should be covered with a piece of linen, oiled with pure olive oil, and a bandage, the so-called navel bandage, applied over it. No effort of any kind must be made to hasten the detachment of the cord by pulling or tearing, as so doing might set up a very dangerous state of things (Fig. 392). Following the principles of the natural laws of life and health, the placenta or after-birth should be allowed to leave the body of the mother, and the cord left to become quite cold before resorting to the division that we have just described. Now it can be carried out in a different manner, as it is not necessary, as in the former case, to tie the cord at all, but simply to cut it at a length of about two inches from the child's abdomen; nevertheless, it is to be feared that the "scientific-medical" midwife of to-day would not easily be converted to the latter method of natural separation, and a difference of opinion with this highly important personage, especially during the period of accouchement, is disadvantageous for the mother and for the child, and inadvisable. We shall therefore no doubt go on in the old way, until our midwives are trained in the Natural Curative Treatment and natural midwifery system.

Necrosis. (See "Bone Inflammation.")

Neptune's Girdle. (See Index.)

Nerves; Nerve Tissues; Nervous Activity.—

The interior of our bodies is permeated by a large collection of peculiar white strings called "nerves." For the most part they are accompanied by veins, and are of great strength and diversified thickness. Their ramified disposal in the body resembles a telegraph network, and, according to telegraphic principle, they have an apparatus at each end adapted for either reception or transmission. But, while an ordinary telegraph wire conducts in any direction, a nerve is restricted to one terminus only, and that specially pointing towards that end bearing the apparatus, which is fitted for putting emotions or sensations into action. Certain nerve cords only lead from out to inside, i.e., from one or other position towards a so-called "nerve centre" (brain, spinal cord, and nerve ganglion). Others reverse this order, i.e., lead from a nerve centre (brain, spinal cord, or ganglion) towards any part of the body where muscles are found in action. Those nerve cords which proceed from a nerve centre are called motor nerves,

and, on the other hand, those which start from any point in the body and lead into the brain are called "sensory nerves." The term "peripheral nerve" is used to those nerves which are in close contact with a nerve centre. When motor nerves are excited in their nerve centre, by the nerve leading to them, reflex action takes place. Those nerves advancing towards a nerve centre go under the name of "reflex nerves." The nerve tissue, of which the brain, spinal cord, nerve knots (ganglia), and peripheral nerves are formed, is a soft mass of either white or reddish-grey colour, partly of fibrous and partly of cellular structure. The nerve fibres (Fig. 393) and nerve cells (Fig. 394) are joined together by a sticky, binding substance, the so-called gelatinous fibre. Fibres predominate in the white, cells in the grey nerve substance.



Fig. 393. Nerve Fibres.

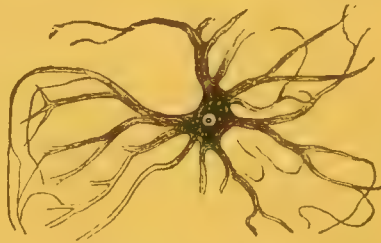


Fig. 394. A Nerve Cell from the Spinal Cord.
(Greatly magnified.)

Concerning the construction of nerve fibres, when they are split longitudinally they are more easily separated than when cut transversely. A nerve can be dissected into the most minute threads when taken lengthwise. The finest of all, the microscopic fibres, represent the nerve element, in the midst of which is a strong thread—the axis cylinder—covered with a skin or nerve-sheath. The space between these is filled with a soft, oily-looking mass, the nerve marrow (white substance of Schwann). The nerve cells, which are in various ways connected with the nerve fibres, are thin-walled, mostly flattened in shape, and of different sizes. They send out a number of branches, and are united by means of the finest filaments, or directly incorporated with the fibres (Fig. 394).

I have already, in the article on "The Brain," etc., spoken of the physiology of the nerve centres, the central apparatus, the brain, spinal cord and ganglia (nerve knots). I have here, therefore, only to treat of the terminal apparatus by which the nerves originating in the central nervous system

terminate in the different organs of the body. The terminal apparatus of the sensory nerves (which are the medium of sensation), as those of the olfactory cells in the mucous membrane of the nose, the taste cells in the mouth, the retina of the eye, the nervous parts of the hearing apparatus, etc., is a highly complicated arrangement. The various sensations experienced in the outer skin are carried through the medium of the nerves of the skin, which extend in exceedingly finest ramification through the dermis, and terminate in small, circular knobs in the papillary stratum (p. 152). The muscular nerves terminate with the muscular fibres in a flattened form. Every organ in the body has its own nerves, and communicates with the nerve centre. The only nerveless parts are the cuticle, cartilage, nails and hair. The most peculiar properties of the nerves are excitability, irritability, and sensibility. The impulse which sets the nerve in motion is called "nerve-excitation." According as the impulse produces a stronger or weaker action, a heightened or diminished excitability is spoken of. Collective portions of the nervous system are excitable through irritation, but, in a normal condition, the nerve is not excited in its onward course, but either through the end situated in one of the nerve centres, or through its other end connected with the terminal apparatus. The nerve itself conducts the impression by transmitting the excitement from the producing to the receiving organ. Every injury (as cuts, bruises, etc.) suspends the conducting capacity of the nerves. Every separate nerve fibre represents an isolated conductor, and communicates between the two organs exclusively on its own account. This explains the circumstance when, for example, we feel a sensation in a certain circumscribed part of the skin, or are able to move one muscle independently of another, etc. It would be going too far here to treat of the nervous system in its entirety. I will content myself in saying that the nerve tissue is softer and more liable to injury than any other, so that the smallest diseased transformation in the body may produce disturbance of the greatest magnitude in the nervous system. On the other hand, it offers no small resistance to many external injurious influences. In the case of hunger, even ravenous hunger, it remains throughout almost undisturbed, and therefore differs from other organisms, in that it is least affected by assimilation. (Refer further to articles on the "Brain" and "Brain Nerves.")

Nerve Fever. (See "Typhus.")

Nerves, Inflammation of the; Neuritis.—Inflammation of the nerves may arise from many causes. Wounds, injuries, inflammation spreading from adjoining organs, colds, infectious diseases, poisonous fumes from lead, arsenic, etc., alcoholic abuse, etc., these may all be productive of acute or chronic inflammation of the nerves. It seldom confines itself to one circumscribed nerve spot, but spreads gradually and progressively into more extensive regions. Sometimes the inflammatory process spreads throughout the whole nerve, sometimes confines itself to single parts of it in such a manner that the sound and diseased portions change places with each other in the nerve. The nerve substance, or the intermediary binding tissue, are for the most part subject to attack, the nerve fibres rarely. The symptoms of an existing nerve inflammation are: Continuous violent pains, piercing, contracting, gnawing and irritating in character, and increasing on pressure or motion of the diseased part of the body; also disturbances of sensation and motion, fever of different grades, sleeplessness, etc.

The treatment must have the removal of the fundamental cause in view. In the case of fever, the treatment prescribed in II., Sect. VI., should be chosen. The local treatment in the case of wounds is local baths at 83.75° to 90.5° F., and soothing, moderately wrung out local packs at 77° to 81.5° F. The wound should be frequently gently washed through the day with pure medicated lint, which has previously been moistened in water at 81.5° to 86° F. In long-standing cases these should be supplemented by local application of vapour compresses, local vapour baths as well as of whole vapour baths, box, cane-chair, or bed vapour baths. Along with this, massage of the corresponding intact parts of the body is recommended. Old and chronic cases require the additional measure of the General Strengthening Treatment. The diet should in any case be mild, easy of digestion, and preferably strictly vegetarian.

Nerve Pains. (See "Neuralgia.")**Nerves, Weak; Nervousness.** (See Index.)**Nervous System.** (See "Nerves.")

Nettlerash (Febris Urticata) is a skin eruption of reddish colouring, of different forms and size. It has the appearance of a nettle sting rising abruptly from the surrounding healthy skin tissue. It arises either in consequence

of outward mechanical influence, such as the bites of insects, contact with stinging nettles, scratchings with the finger-nail, which cause irritation of the skin, or in the use of certain drugs and foods, as strawberries, vinegar-dressed food, crabs, mussels, cucumbers, mushrooms, opium, quinine, etc. Nettle-rash is also often the accompanying symptom of diseases of the digestive apparatus, of worm troubles, women's and infectious diseases, etc. The little elevation generally breaks out by itching of the skin, specially in the face and trunk, and in many cases runs into raised, enlarged spots. Sometimes slight fever accompanies the disease. Its course and favourable termination is generally rapid. Its transmission into a chronic form is very rare.

The treatment consists in one or two daily half-baths at $83^{\circ}75^0$ to $88^{\circ}25^0$ F., or in the same number of trunk baths at $81^{\circ}5^0$ to 86^0 F., lasting from ten to fifteen minutes; also in stimulating body, calf, and leg packs. In many cases—mostly chronic—the application of vapour baths of some kind is prescribed.

Constipation must be rectified by enemas.

Neuralgia. — Neuralgia is a violent sensation of pain, which closely follows the course and extension of one or more nerve branches, and is subject to constant fluctuation in the intensity of its attacks. People with inherited or acquired weak nervous system, poor-blooded people subject to green sickness, stoutness, etc., are the most frequent victims to neuralgic attacks, which any encouragement, such as cold, chronic state of poisoning (metal, cachectic, or nicotine poisoning, abuse of alcohol), injuries (wounds), disturbances of the circulation (blood congestion), diseases of the brain and spinal cord, constitutional diseases, chronic constipation, etc., puts in motion. Foreboding symptoms are tension and feeling of pressure, twitchings, ticklings in the affected parts, often precede an attack. Frequently the pain darts out in all directions from the point of attack, touches this or that point with lightning speed, and courses, in all its intensity, towards the original point again. Its character is stinging, cutting, piercing, twitching, irritating, burning, greatly resembling the course of lightning, so that it is frequently spoken of as lightning pain. When it has lasted for about a moment or so in all its violent intensity, it ceases for a little time, in order to renew the attack with redoubled force. This may last from a short while to several hours. The periods between attacks

may amount to hours, days, weeks, months or years. The parts of the body attacked may retain their normal sensibility, or experience increased or no sensibility at all, and it is frequently observed that neuralgia rages most fiercely in those parts which are generally most devoid of sensitiveness. In the course of the disease certain spots ache terribly. These are called pain or pressure points. In the height of its course the pain digresses far from its original track, pours into a neighbouring nerve centre, and, if seated on the right side, turns also to the left, so that, occasionally, the whole body is one region of pain, and the patient is unable to determine in which direction the generating point lies. The parts most subject to attack are the outer skin, the bones and joints, as well as the inner organs (stomach, intestines, womb, etc.).

The treatment must have in view the removal of the fundamental cause. Doubtful cases are overcome by the application of the General Strengthening Treatment. The palliative measures of the Natural Curative Treatment, for stamping out single attacks, consist in the application of moist warmth, vapour compresses should therefore be applied to the aching parts unintermittently, or partial vapour baths taken; also, subject to circumstances, whole vapour baths, full baths increasing in temperature from 95° to 106·25° F., and of moderate duration. The intervening pauses should be put to account by the application of stimulating local packs, at 77° to 81·5° F., to the parts affected.

On the other hand, some cases require the application of dry warmth in the form of Roman-Irish baths (refer to these in Index), hot sand baths, etc. The affected parts may also be rolled up in cotton wool or wadding. Further, for the alleviation of pain, massage, in the form of mild soft stroking and kneading of the seat of pain, and its apparently healthy surroundings, is recommended. The aching limb should not be moved, but retained quietly in a high or horizontal position.

Neuralgia of the Maternal Breast. (See "Women, Diseases of.")

Neuralgia of the Teeth. (See "Teeth, the.")

Neuralgia of the Womb. (See "Women, Diseases of.")

Nightmare is the dreamy condition during sleep in which we have feelings of fear, difficulty of breathing, etc., combined with choking sensations, feelings of tightness in the

windpipe, perspiration and groaning. The dreamer awakens, and clearly remembers all the terrible pictures he has seen, Anything interfering with the breathing apparatus, by pressure or irritation, may cause nightmare, such as a bad position in bed which impedes breathing, or a full stomach pressing on the diaphragm. The difficulty of breathing is always connected with the dream, and we therefore have the choking sensations caused by it; also by the irritation of the nerves, which is reflected by the nerves to the muscles of respiration. In this way an accumulation of wind or fæces in the large intestine, worms, engorgement of the blood vessels of the abdomen, heart or spleen, etc., may cause an attack. Hypochondriacs and hysterical people, or those who have a meal shortly before going to bed, or have exciting discussions, are frequently sufferers from this complaint. Sometimes a similar state is seen in children: during the daytime they are extremely sleepy, partially conscious, but utter shrieks of fright at a supposed bogey which they imagine they see, and anxiously seek the protection of an adult. The treatment must be directed to the cause. Remedy any errors of diet, have the last meal early in the evening, eat non-stimulating dishes, such as are easily digested, milk and egg foods, fruits, etc. The use of feather beds tends to this complaint. Do not lie on the back, but on the right side, with the legs slightly bent and lightly drawn towards the body.

The bowels should act regularly every day; before going to bed empty the bowels and bladder, and do not sleep late into the morning hours. Plenty of fresh air, day and night. On awaking in the morning a whole-body ablution, 73° to 77° F. Walking during the day, barefooted, in the wet grass, freshly-fallen snow, or water; treading water; foot baths, knee and ankle affusions, vapour foot baths, sitz baths, sun, light and air baths; at night stimulant abdominal and calf packs and enemas; these remedies, applied singly or in combination to individual cases, will be found most serviceable for the cure of this complaint.

Night Blindness. (See "Eye Diseases.")

Nipples, Retracted. (See "Women, Diseases of.")

Nipples, Sore. (See "Women, Diseases of.")

Nitrogen. (See Index.)

Nose, the.—The nose consists of two distinct parts—the internal and external nose. The latter has its foundation composed partly of bone, partly of cartilage. Its form is very

diversified. The former consists of the nose cavity, which is covered with mucous membrane. It is open before and behind, and so formed that a part of the air transmitted to the lung must pass through it in order to arrive there. It is divided into two perfectly separate compartments by a partition (Fig. 395) running through its centre from the cribriform plate of the ethmoid bone (which forms its roof) to the bony palate. This partition is composed, in front, of cartilaginous, and behind, of bony material. The three muscles of the nose lie over each other, along its outer walls. (Fig. 395, b, c, d.) The two nostrils form the anterior entrance into the nasal cavity; the posterior cavities lead on to the throat, thereby

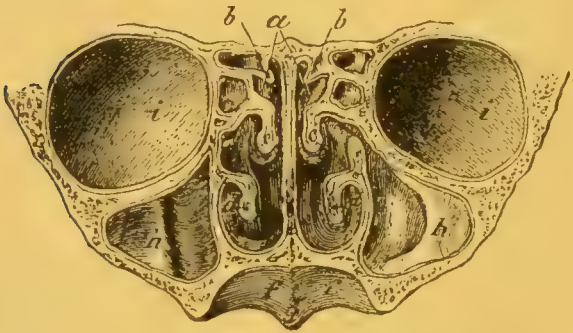


Fig. 395. The Nasal Cavity.

(Longitudinal and horizontal section.)

- a. The two divisions of the nasal cavity. b. The upper, c. Middle and, d. Lower nasal cell. e. Septum of the nose. f. The gums. g. Uvula. h. Cavities (fossæ) in the upper jaw. i. Eye cavities.

communicating with the mouth cavity, larynx, trachea, and œsophagus (Fig. 342). There is at the same time communication with the ear and tear duct, as well as with the forehead, ethmoid, sphenoid, and upper jawbone cavities. The mucous membrane of the nose is rich in nerves and blood vessels. That part of

it which covers the lower portion of the nasal cavity is encased in a variegated outer skin, and encloses veins and mucous glands.

Nose Bath. (See Index.)

Nose Bleeding. (See "Bleeding at the Nose.")

Nose Catarrh. (See "Catarrh.")

Nose Polypus. (See "Catarrh.")

Nourishment. (See Index.)

Nymphomania (Sexual Hysteria.) — By nymphomania is understood the disordered condition of the female mind, produced by abnormal irritability of the sexual organs.

What may be safely stated of this disease is, that it consists in an exaggerated excess of sexual instincts, which the patient at all costs seeks to gratify and bring into action. Excessive, self-imposed restraint for a long period, flexions,

inflammation, structural changes in the procreative regions, white discharge, or other unwholesome irregularities in the female organs, greatly conduce to nymphomania. Abnormal excitement of the female organs causes this aberration of intellect, the reflex action of an abnormal condition of the body on the brain.

The treatment must be directed to the primary cause of the complaint, and be the task of a doctor experienced in mental diseases and the Natural Curative Treatment.

O.

Obesity (Corpulence). — The deposition of fat, or the laying on of fat in an abnormal manner in the fatty tissues of the whole body, is called obesity, or corpulence (*embonpoint*). Many people look upon growing fat as a proof of nutrition and of health, whereas it really represents only an accumulation of foreign matters in the body, and is a condition consequent upon a retarded metabolism, and is the product of an imperfect formation of the blood. A normal formation of fat, and a normal laying on of fat, differs very much in different persons, according to sex, constitution, temperament, age, and mode of feeding. Women are, in general, “fatter” than men. In the East corpulence is an indispensable requisite of feminine beauty. In the harem of an Oriental, the abundant use of oatmeal porridge and honey is regarded as the most approved means for becoming fat. The Bey of Tripoli fattens up his beautiful wives and female slaves with rice-flour, thick soups and honey. Very often obesity is the result of an improper mode of life, such as constantly sitting still, and at the same time taking overmuch food; of laziness and much sleep; beer, hot ale, chocolate, and dishes that contain much sugar and starch, partaken of in great quantities, are likewise favourable to the production of obesity. Very often there is an obvious predisposition to become corpulent, which is sometimes inherited. Women frequently become fat after the cessation of menstruation, at the commencement of the so-called years of the change of life, after frequent confinements, or when they are bearing. Convalescents, after great loss of blood, inflammatory feverish diseases, amputations, especially the loss of one or both legs. Athletes, gymnasts, acrobats, and such like, having discontinued their accustomed activity, generally acquire a very considerable

embonpoint. People who have become better circumstanced after trouble and care, or who have changed imperfect for more nourishing and abundant food, often show the change in their material or culinary circumstances by an increase in plumpness.

Corpulence, however it may arise, always and invariably indicates an abnormal tendency of the digestive functions, or a fault of constitution, even when it does not directly produce disease, and it accordingly shows an increased tendency to disturbances of the metabolism, and brings about a diminished power of reaction and a certain amount of debility.

Corpulent people have, as a rule, a quiet character; they possess what is called a phlegmatic temperament. At the same time one would be making a great mistake in supposing that it was the temperament which first produced the corpulence. The phlegmatic temperament and the predisposition to corpulence are properties which indeed frequently co-exist in one person, but far from always. There are equally phlegmatic people who are as thin as spindles, and enormously fat people of sanguine and choleric temperament. Corpulency, as a rule, develops quite gradually. At first the fat is laid on the cheeks, on the chin, the throat, the nape of the neck and the breast. Then appears the fat abdomen, the stomach is excessively distended, the legs become thick almost to malformation, the hands and the feet become fleshy, until gradually the whole individual is, as it were, enveloped in a pillar of fat. Even young persons occasionally attain a weight of from two to three hundredweight. Hand-in-hand with the deposition of fat there goes on a greater or less disturbance of the general health, such symptoms appearing as shortness of breath, indolence, congestion of the head, palpitation of the heart, weakness of the heart, fatty heart, and poorness of blood, for every corpulent person suffers from the latter complaint. The poverty of the blood in red corpuscles, in mass as also in composition, is the true origin of the obesity. A constant disproportion exists between the using up of fat in the organism and the fat production in favour of the body. In consequence of the want of oxygen in the blood, the respiratory movements are defective, the carbon is no longer oxidised in consequence of the lack of oxygen in the blood, and is therefore given over to the blood for the formation of fat and for fat deposition. With this condition is often associated that of the blood becoming

watery, as a consequence of the habitually excessive supply of fluid, as, for instance, by the excessive use of beer, such as is daily observed in the case of restaurant keepers, publicans, brewers, etc. In slighter cases of obesity the lungs still remain healthy, or comparatively so, while, in some cases, they already show a deadened sound on tapping the walls of the chest, and, by auscultation, one is able to observe a weakened sound of breathing as a consequence of the breathing capacity being diminished by the cushion of fat. Breathing troubles are readily experienced on climbing mountains, or going up and down stairs. Stout people usually pant under the burden of their fat. In slight cases of corpulence the heart does not show any particular symptoms. In severe cases, however, there arise those already mentioned, namely, palpitation of the heart and fatty heart (that is to say, the overgrowing of the muscles of the heart with fat) which causes dropsical swellings, varicose veins in the lower extremities, abnormal sensations of cold, etc., in consequence of the disturbance of the circulation. Further disturbances of the general health are characterised by an increased, or sometimes even a diminished secretion of sweat and sebaceous matter, as well as coolness and paleness of the skin, a tendency to the production of carbuncles, and to rheumatic and neuralgic troubles. Great irritability, headaches, giddiness and singing in the ears, catarrhal affections of the digestive and urinary apparatus, diminution of muscular strength and of the capacity for reproduction, disturbances of menstruation, depression of spirits, hypochondria, inactivity of thought, sleepiness, want of energy, etc. Very excessive obesity may lead to death, through a failure of the heart's action, through diseases of the lungs, liver and kidneys, through hemorrhage of the brain, or diabetes mellitus.

The most varied and novel modes of treatment and invention have been recommended for the widely-spread complaint of obesity, and named after their inventors. They all have for their object the diminution of the deposition of fat, and the decomposition of the fat in the system, by means of special measures, which, as a rule, are dietetic in their character. Most of these various cures undeniably effect the rapid decomposition of the cushion of fat, but at the same time diminish the strength of the constitution, since, in consequence of a too one-sided diet, they permanently affect the digestion and the whole organism. Besides all this, these

methods are too systematic in regard to diet. I have said elsewhere, and it cannot be too often repeated, that one must treat the patient and not his disease. The best-known methods of reducing fat are the Banting Cure, Professor Ebstein's System of Reducing Fat, and Professor Oertel's Treatment for the Reduction of Fat. The cure invented by Professor Oertel, of Munich, was tried, with remarkable success, by Professor Schweningen, on the late Chancellor, Prince Bismark, and the grateful patriots have, in consequence, called Oertel's Treatment the Schwenniger Cure.*

* In the collection of Medical Treatises published by Max Merlin, of Vienna, Professor Schweningen has recently published a work on Obesity. From this interesting and generally intelligible work I take the following:

Besides the daily-repeated friction and washings of individual parts of the body with cold or hot water, Schweningen lays stress on the mechanical influences in the treatment of obesity. "In reference to the kind of massage suitable in those who suffer from corpulency, one may say in general that the harder and the deeper the thick masses of fat are kneaded and pressed, so much the greater is the effect. The pains which are usually caused at first by this treatment generally disappear more or less within a few days, and what was at first a torment to the patient becomes at last a pleasure to him." With reference to diet, the writer advises the corpulent to make their chief diet consist of meat (meat of any kind, even fat meat, cold or warm, just as they like), fish, oysters, caviare, crabs, lobsters, sausages, eggs, and cheese. As auxiliary diet, bread (white or grey), fruit, jam or stewed fruit, spinach, asparagus, cabbage, etc.; cucumbers and green salad may be partaken of. As beverages, water, soda water, the water of acid springs, fruit juice and lemon juice, white wine and cider. Oysters, caviare, lobsters and fine fish may very well be replaced by herrings and smoked flounders, meat by different kinds of sausage, asparagus by cabbage, and fine stewed fruit or jam by plums, etc. All things which can be obtained by people with moderate incomes from this list of the diet prescribed, it is seen that the foods which are to be regarded as forbidden are soups, potatoes, beetroot, carrots, etc.; leguminous vegetables, macaroni, rice, farinaceous foods, as well as butter and fats (excepting so far as these are necessary for the cooking of the meat and the vegetable dishes), and among drinks, beer, red wine, milk, tea, coffee, chocolate, cocoa and spirits.

Concerning the chief point in his anti-fat cure, Professor Schweningen says: "The essence of our treatment consists in the strict individualisation of each separate case. We must accustom ourselves to small meals, rather taking more frequent meals than eating much at a time, and should, if possible, in some cases separate eating from drinking. If one gives to corpulent patients exactly the same quantity of food and drink that they are accustomed to take daily, in perhaps two chief meals, divided into three or four meals, or even five or more, then the result will almost always be that,

The Banting Treatment (see under this head) consists in an almost exclusive meat diet, with the avoidance of every kind of fat, and only a very small proportion of food containing starch. Professor Ebstein's Cure culminates in the undoubtedly correct opinion of its discoverer, that it is not the amount of fat eaten by the patient which causes the deposition of fat, but the great amount of carbo-hydrates taken into the system, which cause the splitting-up of the albuminous materials eaten at the same time into fat, and its subsequent deposition on the body. Therefore Ebstein, in his course of treatment, limits the amount of carbo-hydrates to a very small quantity indeed. Sugar, sweet dishes, potatoes, etc., he excludes altogether; of bread he only allows from three to four ounces a day, and of vegetables the only ones permitted are spinach, asparagus, and cabbage, while, on the other hand, he actually recommends the eating of fat meat, fat ham, and of fat sauces. Through the introduction of large quantities of fat, he thinks the formation of fat out of the albuminous bodies is prevented. Another advantage to be gained by the eating of fat is, according to him, that the feeling of hunger is rapidly diminished, and that the patient is more rapidly satisfied; thirst is also quickly extinguished,

whereas their weight either increased continually, or remained as it was, it will now gradually diminish, even if the gross amount of food taken is not of itself gradually diminished. Large meals favour the formation of fat and the deposition of fat. Small meals, on the other hand, favour the using up of fat in the system and the diminution of fat." At the end, Professor Schweninger sighs over the difficulties attendant upon the treatment of corpulency. He says: "Of course the disappearance of excessive fat also makes itself evident to an extent in the face, giving the patient a more or less suffering expression. What wonder then if the patient is then greeted by his friends with the uncomplimentary remark, 'Oh, how miserable you look!' Then there often follows some 'medical' talk, which generally ends with the wise saying, 'Beware of such dangerous cures!' Those amiable people to whom the ideal of a healthy human being is represented only in the form of a thick-bellied, fat-cheeked, that is to say, of a 'well-nourished' individual, find that it costs them nothing and gives them very little trouble to sow the seeds of distrust. They think, by this means, to show their interest in and their care for the patient, and go away very proud of what they have done. The patient himself, however, has also not always got the necessary iron will to withstand such daily-repeated frightenings, and therefore wavers in his procedure. Hence the necessity for the physician to exercise his whole influence in order to remove doubts, to quiet fears, and to revive the wavering courage of the patient."

so that a small desire for food sets in. Generally, however, the patient soon gets sick of the large quantities of fat, and quickly returns to his old mode of diet, to again recover, with equal rapidity, the body weight he has lost. Professor Oertel, on the other hand, fights against the malady of obesity in another way, and alleges, as the most important point in his method: 1. The strengthening of the muscles of the heart; 2. Care for the normal constitution of the blood; 3. The regulation of the amounts of moisture contained in the body; 4. The hindering of the deposition or laying on of fat. The first of these is to be attained by the patient by methodical mountaineering, and a liberal supply of exercise on level ground. The second, by partaking of an exclusively albuminous diet. The third, by limiting the amount of liquid taken into the system (as a rule not more than a quart of fluid during the twenty-four hours), and by increasing the excretion of fluid by Turkish baths, packs, etc., as well as by bodily movements continued for many hours during the day. The fourth, finally, by a strict adherence to a diet consisting of the following foods and drinks: For breakfast, four to six fluid ounces of tea or coffee, including a small proportion of milk, and two to three ounces of bread; for dinner, three to four fluid ounces of soup, six to seven ounces of roast or boiled meat, to taste; salad, or easily digested young vegetables, as much as the patient likes; one ounce of bread, or a farinaceous dish of the quantity of three to three-and-a-half ounces; three-and-a-half to seven ounces of fruit (either raw or cooked, or only half as much in the form of stewed fruit); either no drink at all, or, instead of the fruit, about half-a-pint of wine. In the evening the same quantity and the same kind of drink as for breakfast, but without bread, or with, at most, one ounce of bread, and for supper one or two soft-boiled eggs, four to six ounces of meat, one ounce of bread, and about half-a-pint of wine mixed with half its quantity of water. When Oertel's Treatment is applied in the manner to suit an individual case, then, as is evident from the case of Bismarck, good results may be attained by it. At the same time it is just as little to be regarded as an universal cure for obesity as is the Banting or the Ebstein Cure. Also, while one "fat man" derives great benefit from the cures of such aperient waters as those of places like Kissingen, Carlsbad, Marienbad, and many other watering-places, others, on the contrary, derive no benefit from them whatever, for the success of one or

other of these cures depends entirely upon the individuality and the idiosyncrasy of the patient himself. As in every other disease, the thing which is important to investigate is, what are the causes of the obesity, and to regulate the treatment accordingly, since, with the removal of the cause, the effects will also disappear.

During his stay in tropical South America, the present writer has observed innumerable instances of newly-arrived Europeans who had to take an anti-fat cure whether they liked it or not. The tropical heat, in combination with an entirely changed mode of life, did all that was necessary to rob a corpulent man of every ounce of his superfluous load of fat, and that without injuring the health of the person in question. But it is not everybody who is in a position to adopt a tropical sweat cure, and I will therefore discuss the rules which the Natural Curative Treatment gives for the removal of obesity.

The Natural Curative Treatment of course does not strive at attaining a rapid disappearance of fat at the expense of the health of the organism generally, and of the strength of the constitution, but it takes care to make the process of the diminution of fat proceed by gradual successive stages. This is brought about by means of daily making the blood more capable of consuming more and more fat than it is in a condition to form out of the nutritive matters with which it is supplied, only by means of a course of life in accordance with nature, and especially by means of a natural diet—in a few cases also by means of a dry diet—and by these means alone is it possible to render the digestive processes normal, and permanently to reduce obesity without injury to the constitution. Just that kind of dietary which is described in the first Chapter of the first Part of my book can be partaken of by corpulent persons, although it contains albumen, carbohydrates, and fats mixed together and eaten together, if they will only observe the three important fundamental rules for a natural diet:

1. Only to eat when they feel pronounced hunger.
2. Only to drink when they experience real thirst.
3. To leave off eating when it tastes best.

That is a mode of diet with which the corpulent may become lean and the lean and skinny may become fat, that is to say, by means of which both may attain a normal weight of body corresponding with their constitutions. That

at the same time all and every kind of stimulant food, such as highly-salted, highly-spiced, and highly-soured dishes, are to be scrupulously avoided, goes without saying, for in order to remove poverty and wateriness of the blood (two provocative causes of corpulence), it is always necessary to limit the supply of fluids, and highly stimulating foods of the kinds described would produce a feeling of thirst. One need not, on that account, by any means become a total abstainer, but may always, on two or three days in the week, drink his accustomed glass of beer or wine, for it is a well-established experimental fact, that the poverty of the blood, always present in cases of obesity, brings along in its train a morbidly-increased feeling of thirst. *Æqualia æqualibus curantur*, or, in English, like cures like, only by the supply of similar matter can matter of a certain kind be got out of the system. In suitable cases the patient may, however, adopt such a diet as that recommended by Professor Oertel, only with this deviation, that for breakfast he should have cocoa, or strawberry-leaf tea (see under this head), and should eat brown bread and fruit with it, and at dinner should omit the soup and the wine. At supper he should likewise strike the wine out of his menu, and, in its stead, take a half to one pint of sour milk,* as well as some brown bread and fruit, and of all the kinds of food allowed he should only eat as much as he likes, but should leave off eating as soon as it tastes best. Patients who want to mortify themselves more may apply a dry cure, as described for the preliminary treatment, or the after-treatment of Schroth's regeneration cure (Hunger and Thirst Treatment.) This, however, they must never do at their own initiative, but always after consultation with an experienced Natural Treatment physician.

To the above-described rules of diet should be added a few hydropathic applications. These consist of a washing of the whole body every morning in water at from 73° to 77° F., or daily wet friction at from 77° to 81° F.; two or three stimulating whole packs a week, or in daily hip baths at from 83° to 87° F., or daily in two or three trunk baths at 81° to 85° F., of from five to ten minutes' duration; in one or two Kneipp's cane-chair vapour baths, or reclining

* Milk which has been left in a soup plate or dish until quite curdled and thick; it is an acquired taste, and not by any means unpalatable.

vapour bath No. 1 or No. 2, in combination with subsequent hip baths at from 85° to 89° F., or trunk baths at from 83° to 87° F. Still, one must always proceed very cautiously in the application of vapour baths at the beginning of a cure. Fatty degeneration of the heart, and other affections of the heart, absolutely forbid the use of vapour baths. In no case, however, let the sufferer believe, as is so often thought, that he will be rid all the quicker of his cushion of fat by the frequent and excessive use of vapour baths. The predisposition to obesity cannot be destroyed in a short time, but, least of all, by the excessive and exaggerated application of a sweating treatment. What the corpulent person thereby attains is, as a rule, the weakening of his whole organism, which, until it is removed, generally prevents the adoption of another and rational anti-fat treatment. When constipation of the bowels is present, use should be made of laxative enemas, followed by injections to be retained, and every night stimulating abdominal fomentations at from 72° to 80° F. Sun baths and light and air baths also exert an extremely favourable influence in the treatment of the corpulent. That Kneipp's shower bath may also be applied with advantage for the removal of corpulence need surprise nobody who knows that it is an important hardening remedy, and that the complaint of corpulency is an exhibition of a pronounced condition of relaxation and debility. If the patient can stoop, then it is most useful to give him, on alternate days, for from eight to fourteen days, a shower bath of the kind, then one every day for eight days. At the same time, however, the patient should be given every day from the beginning of the treatment two leg shower baths. If the sufferer cannot stoop, then, besides the two daily leg shower baths, he should have at first a complete washing of the upper part of the body every day, and this should be given twice a day after about eight days. After another eight days one proceeds to the application of a back shower bath in the day, and after still another eight days, to two back shower baths a day. At the same time the patient is to have, as I must again impress upon the reader, two leg shower baths every day. Finally, one should regard as important factors in the treatment, general massage of the whole body, carried out with considerable strength, and Cycle of Movements No. 1 of the Simple Active Movements of the Hygienic Gymnastics. That much exercise in the open air by means of walking, cycling or riding, systematic

mountaineering, the avoidance of the mid-day sleep, the shortening of the sleep at night (only six or seven hours' sleep), etc., reduce corpulency, need of course hardly be demonstrated, the walk must not be merely a formal affair, but must be many miles in length. At the same time it is advisable that, instead of games at cards, chess, dominoes, etc., in the summer, that excellent game bowls, and in the winter billiards, should be indulged in, and that the patient should also make choice, for bodily exercise, of skating and dancing. Finally, one should never forget the service rendered to humanity by that noble man who discovered that the sawing of wood was a means of promoting health.

The Obstruction of the Chest with Mucus in New-born Children.*—This trouble is characterised by a collection of mucus which occurs without any apparent external cause, without fever, without restlessness, accompanied by good sleep, and good appetite and regular digestion, but which may bring with it a danger of suffocation. It would appear, however, that the fundamental causes of this condition are to be found in a checked perspiration, that is to say, a checking of the excretory activity of the skin.

This trouble is generally found in babies who are far too closely wrapped up in swaddling clothes and over-heating feather beds. An excessively high temperature of the room, want of ventilation (especially in winter), frequently contribute to the sudden appearance of a clogging of the chest of newly-born infants with mucus. The attack itself is accompanied by

* This disease is, I believe, more common in Germany than it is in England, in consequence of the fact that the German method of swathing young babies is very much more irrational and injurious than the English, but still the method has not yet been quite given up in England of putting on a number of tight bandages, and non-porous and chilling linen and cotton baby clothes. This is most injurious, checking perspiration, keeping all the poisonous matters close to the body of the young infant, preventing free movement, and favouring this and other diseases, which people think are "natural" to infancy. It may not be out of place here to say that newly-born infants should wear as few garments as possible, that these should not be made tight in any part whatsoever, and that they should consist of a material that does not chill, and does not check perspiration or the exhalation of what the body gives off, either in a gaseous or fluid form. In a word, the only proper clothing for new-born babies is that made of pure woollen stockinette, for my own part, I think the best form it can take is that of the Ballin-Jaeger layette.

a loud rattling in the throat, and the face becomes swollen and blueish-red. After it is over, there follows, as a rule, a quiet and undisturbed sleep, during which, however, there is an uninterrupted flow of thin, whitish, bright slime from the mouth. In the course of six or seven hours, sometimes also much earlier, another attack follows.

The treatment requires, in the first place, a packing of the whole body at 82° to 86° F., with extra compresses for the throat at 77° F. During the whole packing a hot water bottle, wrapped in a moistened cloth, should be applied to the feet. The whole packing should last until the body is well warmed up again, that is to say, about one to two hours. Hereupon should follow a washing of the whole body at 86° F., and dry friction. This procedure can be gone through perhaps twice in the day. In the intervening time stimulating abdominal fomentations, at from 77° to 82° F., should be applied, and if the feet are cold, hot water bottles must continually be kept to them; also laxative enemata should be made use of. If the head be hot there should be cooling head fomentations at 82° F., but they should only be kept on for a very few minutes. Above all things, great care should be taken to secure good pure air in the room and a healthy airy bed. The child should be fed as nearly as possible in a natural manner, consequently with mother's milk, or with that of a wet nurse.

Œsophagus. (See "Gullet.")

Onanism. (See "Self-abuse.")

Outer Compress, according to Kneipp. (See Index.)

Ovarian Tumour. (See "Women, Diseases of.")

Ovaries, Inflammation of. (See "Women, Diseases of.")

Oxygen. (See Index.)

Ozena. (See "Colds, Catching.")

P.

Pack, Arm. (See Index.)

Pack, Body. (See Index.)

Pack, Calf. (See Index.)

Pack, Chest and Shoulder. (See Index.)

Pack, Dry. (See Index.)

Pack, Entire, Three-quarter, Half. (See Index.)

Pack for the Feet. (See Index.)

Pack, Three-quarter. (See Index.)

Pack, Wet. (See Index.)

Pad for the Abdomen, according to Kneipp.
(See Index.)

Palsy (Paralysis Agitans). — Palsy is not a very rare disease, and appears in the guise of involuntary movements of separate parts of the body, which indicate paralysis at a later stage. The cause has not been sufficiently shown. As regards the symptoms, peculiar tremulous motions are first seen in the hand and fingers, then the corresponding arm, leg, and the one side of the body are attacked, and, finally, the other side, in the same order. The tremor generally affects the entire body. The head and face muscles are not, as a rule, drawn into sympathy, though the head falls in with the shaking of body and limbs. Excited emotions and bodily exertion increase the trouble, bodily and mental repose decrease it. In bad cases, the tremors become beats, which occur regularly, are fairly quick, swinging, and of varied force, and which hinder the patient in every action, and render him quite helpless. The muscles stiffen so much that the gait of the entire body is changed by the displacement of the extremities; the thumbs are turned inward, the other fingers are bent, the arms are bent in at the elbows towards the body, the legs are bowed at the knee-joints, which rub against each other, and the head bends forward. Very little chance of a cure exists, and the illness may extend over years, even decades.

The treatment consists in adopting the "General Strengthening Treatment." Among the best measures we may mention tepid baths (90° to 92° F.) once or twice a day, for ten to fifteen minutes; weekly, one or two bed vapour baths; daily massage of the entire body, and gentle movements, as shown in Figs. 199, 207, 210, 214 of Curative Gymnastics. The diet should be low, non-stimulating, digestible, principally vegetarian. In summer time air baths are very useful. At night stimulant packs may be applied to the spinal cord, 73° to 77° F.

Paralysis. — By paralysis is meant a cessation of voluntary motion in the muscles normally subject to the action of the will. The causes of paralysis lie, for the most part, in the brain or spinal cord; on the other hand, it may be caused by any exterior mechanical operation, or previous disease effects, working upon a nerve centre and destroying its power by rendering the nerve incapable of performing its

functions through degeneration, pressure, etc. In the human organisation, the motive and emotional impulses do not run by and in the same nerve; on the contrary, they are widely separated, and in the spinal cord sharply contrasted from each other as anterior and posterior nerve roots (p. 872). There are, however, lying beside the nerves, performing miscellaneous duties exclusively, motor and sensory (sympathetic) nerves. Motor paralysis is either complete, in which case capacity for motion is entirely lost, or incomplete, when the capacity is limited to a certain amount of action. In the former case it is termed paralysis, in the latter paresis. Should the paralysis extend to half the body transversely (as both legs, etc.), it receives the name of "Paraplegia," and, when one-sided longitudinally, it is called "Semi-plegia." According as the current is broken, either in the central or peripheral organs, it receives the name of "central, or peripheral paralysis." The cause, of central paralysis are mostly a destruction of the blood vessels in the brain, with disturbance of nerve tissues through blood effusion. Peripheral paralysis arises, on the other hand, through mechanical operation on the nerve itself; for example, by tumour, pressure, or severe circulation disturbances, as congestion of arteries through blood clotting (thrombosis); by severance of the nerves, in consequence of a wound, etc.; through excessive cold affections, acute infectious diseases, over-exertion of the muscles, lead poisoning (p. 1180); or, finally, through physical influence, as in the case of hypochondriasis, hysteria, etc. Should the cause of a central paralytic attack proceed from the brain, the paralysis is said to be cerebral paralysis; on the contrary, should it lie in the spinal cord it is called spinal paralysis. Cerebral paralysis generally appears as semi-plegia, and always on that side of the body which is placed opposite to the disturbance (for example, to the blood clot) in the brain (face, tongue, arm, leg, are generally paralyzed); a spinal paralysis, on the contrary, appears mostly as paraplegia, when both legs are also paralyzed. The paralysis then spreads gradually upwards. Should one of the sympathetic nerves be paralyzed, insensibility and loss of motion in the part it operates upon occurs. This condition is called anæsthesia. The muscles of the paralyzed limb shew, in reference to their size and appearance, either no change, or a very modified one, or complete atrophy. There is some difference in the passive motor capabilities of the paralyzed

limb. It can either be moved easily in its joints by another person, or this may take place only by great effort, and sometimes not at all. The paralyzed limb frequently presents a blueish marbled appearance, is cold to the touch, and either dropsical, swollen, or withered, dry, thin and ruddy.

The treatment, as paralysis never stands alone, must be directed to the removal of the fundamental cause. The most important local curative factor is massage, which, when the case is progressing favourably, should be combined with corresponding Passive Health Gymnastics. From among Simple Active Motions, preference should be given to Nos. 9 or 10. The paralytic should also follow the directions of the General Strengthening Treatment, with nightly application of wet, stimulating back packs, at 77° to 81° F., into which thick, stimulating extra (spinal) compresses, 77° to 81° F., have been inserted, as well as partial packs at 77° to 81° F., throughout the whole extent of the paralyzed limb.

Paralysis Agitans. (See "Palsy.")

Paralysis of the Eye. (See "Eye Diseases: Squinting.")

Paronychia. (See "Whitlow.")

Parotitis. (See "Mumps.")

Patent Medicines.—The desire of a person whose health has broken down to be restored in an easy way, in complete ignorance as to the actual disorder, and equally so as to the conditions under which he can possibly be cured, has called an industry into being, which consists in preparing and selling so-called "Secret or Patent Medicines."*

They are so-called because their composition and inventors are shrouded in mystery, although chemical analysis very soon solves the problem as to all remedies that come into the market. They are advertised in high-sounding and taking terms to the public as curatives for every disease under the sun. It is a trade that reckons on the deception of a public needing cure, to whom the remedies are announced by almost scandalous newspaper and wall advertisements. Apart from the fact that the so-called "inventors" of these remedies—who call themselves "benefactors of mankind," as if they wanted to insult it—are very well aware of the inefficacy of

* By "secret remedies" we understand, in the widest sense of the word, such substances, and not only drugs, as are sold as a cure for a specific disease, while their origin and composition are kept secret.

their medicines; the prices are high, so that the customer pays all he has in the way of loose cash. It answers the vendor's purpose to ascribe the power of curing one, if not every disease, to the medicine, so as to secure as many purchasers as possible. The trade in patent medicines is a speculation on that quality in mankind which, as is well known, is endless; it is therefore not surprising that the speculative fraud succeeds. The speculator trades on the credulous ignorance of mankind, on his leaning to anything that is mysterious and supernatural. Although popular treatises exist in great numbers as to the organic nature of man, the reality of health and sickness, which spread true and healthy ideas, at such a price that they are within reach of the poorest person, yet to the greater part of the public, man and his nature remain an unsolved mystery, while they educate themselves by novel reading, going to theatres and concerts, playing the piano and speaking foreign languages, but are perfectly ignorant as to hygiene in general, and their own health in particular, and therefore have not the slightest hesitation in using a patent medicine. If they would possess themselves of a sensible, clear view as to their own organisation and its duties, the necessity of a healthy life, the course of sickness and restoration, they would never be deceived by a patent medicine charlatan. To enumerate the countless patent medicines already in existence, or even some of them, would require a large volume. I will just "show up" a few, and these some of the best-known at this time.

Accompanied by a pamphlet, entitled "Dr. Airy's Natural Curative System," several patent medicines are sent out, with great puffing, by Messrs. F. A. Richter & Co., Rudolfstadt. One of these is called "Pain Expeller." It consists of 35 parts of tincture of cayenne pepper, 20 alcohol, and 20 sal-ammoniac. Another of these "world-renowned" remedies is "Sarsaparillian;" it contains alcohol and honey, and a little iodide of potassium, all the rest is sarsaparilla and quinine.

Extract of Alpine Herbs, Dr. Schwarzes, Dresden, prepared by Otto E. Weber, of Berlin, is composed of senna, and a few other drugs.

American Pills, by Boldt Lesington, for persons of full habit, corpulence, sedentary habits, and as an antidote against infection, consists of scammony, a biting resin, and strong aperient; rhubarb and soap.

Gräfe's Eye Lotion, by Roth, is a solution of sulphate of zinc, in fennel water, coloured by tincture of fennel seed.

Romershausen's Eye Wash is an extract of fennel seed with alcohol.

White's Eye Water, made by Ehrhard, at Altenfeld, is a solution of zinc sulphate and honey in water, scented with oil of cloves.

Bilfinger's Balsam, for rheumatism and gout, is a solution of black soap in water, alcohol, camphorated spirits and ammonia, with a tincture of cayenne pepper.

Tape Worm Remedy, by Mohrmann, is male fern and pomegranate root, raspberry juice, and castor oil.

Roger's Hair-growing Tincture, French brandy, a little salt and tincture of mace.

Brandt's Swiss Pills are said to contain principally different harmless vegetable extracts, but really aloe forms the chief ingredient.

Rupture Plaisters, Krüsi-Altherr, for rupture of the bowels, are made of pine oil and turpentine.

Sturzenegger's Ointment for Rupture is a mixture of lard and oil of laurel.

Eau de Lys de Lohse, a beautifier, is rosewater, with oxide of zinc, magnesia and glycerine.

Quante's Cure for Epilepsy: 1. Petroleum coloured red, and animal oil; 2. Mixture of bromide of potassium, bromide of ammonia, valerianate of zinc, and root of mugwort; 3. Rectified oil of amber.

Lemonade for Forgetfulness, Raufer, Vienna, which, after being used for some weeks, "lifts a veil from the brain," consists of phosphorus and glycerine.

Aural Oil, by Dr. Schmidt, consists of camphorated oil, oil of cloves, cajeput oil.

Medical Herbal Honey, Lück, is honey, crab-apple juice, salicylic acid, and alcohol.

Winter's Gout (Magnetic) Belts are copper and zinc, with a covering of the same. Have no effect of course. They cost 10s., and are worth 2½ d.

Pattison's Gout Wadding is badly dressed wadding. One side is dyed red with tincture of sandal wood, and scented with balsam of Peru, and benzoin resin.

Liebaut's Regenerator is made of dextrin and grape sugar, in a decoction of some harmless herbs and roots.

Lilionese is a scented, weak alcoholic solution of carbonate of potash.

Sanjana, patented by the Sanjana Company, Egham, is an extract of the bark of the cherry tree, perfumed with chloroform, and a solution of bromide of ammonia and bromide of soda, in oil of bitter almonds.

Apoplexy Preventive, Weissmann, is composed of tincture of arnica coloured red.

Warner's Safe Cures are partly a mixture of the leaves of the liverwort, with nitrate of potash, glycerine, spirit, and oil of evergreen, and partly aloe pills.

I think this slight description of patent medicines, and a representation of their composition, will suffice as a warning to my readers against using any one of them. They are of no use except to fill their vendors' pocket; but the people using them are injured in pocket and health.

Pediculus Pubis (Crabs). — Among the smaller troubles that mortals are afflicted by in their passage along the thorny path of life, must, without doubt, be numbered the possession of these parasites. In what way they are acquired I need tell nobody who is their lucky owner. All that it is necessary to do is to describe the torments which they cause, and the means prescribed in the Natural Curative Treatment for again ridding himself of these disturbers of the peace. Perhaps it may also interest the sufferer to know something of the natural history of this plague. The pediculus pubis is a kind of louse, with a rounded, broad body, a short chest, and long, scissor-like legs. By preference it has its habitat in the hairs of the pubis, in the hairs on the abdomen, and in the hairs in the armpits; but may also make excursions to the hairs of the beard and the eyelashes. The louse produces on the place of its encampment an unbearable itching, and since anyone who itches scratches himself, there arise in consequence of the scratching reddening and eruption on that part of the skin.

The treatment consists in the repeated cleansing of the affected part with soft soap and warm water, in combination with the subsequent steaming of the part in the form of night-stool vapour bath or of a complete vapour bath. Only patience and perseverance can lead to the removal of these small plagues. The inunction with grey mercurial ointment (which must be repeated about eight days after the first inunction, since at that time the progeny of the eggs that

adhere to the hairs crawl out) certainly brings about a somewhat quicker and more certain result, but is, on account of the poisonous nature of the agent, not without danger. For the comfort of those to whom the little animals will not so rapidly bid farewell, I may add that no one has died from the affliction of the pediculus pubis.

Peeling, Scaling, is the process which takes place after the termination of the fever and eruption in eruptive fevers (measles, scarlatina, smallpox, etc.), when the skin peels in more or less sized scales. (Further details under headings of the various "Eruptive Diseases.")

Pemphigus, an Eruption of Pustules or Vesicles, is the technical name for a skin disease in which little blisters form, either singly or in groups, on various parts of the body; as for instance, on the face, on the lips, on the sexual organs, etc. The appearance of these vesicles may be accompanied by symptoms of fever, or not, and by more or less pain or itching. The vesicles are filled with a serous fluid. ("Serous" means somewhat like to serum, or the thin watery fluid found in milk, blood, etc.)

They vary in size between that of millet seeds and that of peas. Occasionally, however, they may be found as large as pigeons' eggs. They remain for a time surrounded by a red and inflammatory ground, then in a few days dry up into a scab and scale off. It generally takes from eight to ten days before the entire peeling off process has been completed.

There sometimes appears on the breast, belly, groin, loins, and sacral region (about the back and back part of the loins), and also on the scalp, face, forehead, and the upper part of the arm, an eruption of little vesicles, which is called shingles. The eruption lasts from one to three days, accompanied by feelings of burning, pricking and itching. The little bladders are of about the size of lentils, but they generally coalesce, and as a consequence a considerable portion of the upper layer of the epidermis (or outer protecting skin) becomes denuded. The fluid that comes away from these little bladders is of a yellowish white, or may be somewhat reddish.

Pemphigus is in reality a nervous affection, the formation of the pustules or blisters always taking the direction of the course of a nerve. The eruption follows its course in a certain order without pain and without fever.

The causes are to be found in dyscrasia of the blood. The treatment must therefore consist in a transformation and improvement of the blood, and of the fluids of the body. The enjoyment of plenty of fresh air, and the taking of a non-exciting dietary, the application of baths for the whole body at a temperature from 90⁰ to 92⁰ F., of reclining vapour and tubular-seat vapour baths, in combination with an after-treatment consisting of hip baths, trunk baths, friction sitz baths, or washings of the whole body, and also of relaxing enemas for the removal of any inactivity of the bowels, etc., are the means best calculated to bring about a speedy conversion of the fluids of the body to a healthy condition.

Percussion.—Percussion (sounding), Palpation (feeling), and Auscultation (hearing) are the methods mostly employed for clinical enquiries, and are necessary for the physical medical diagnosis of the condition of the internal organs and cavities of the human body. On sounding, or tapping by the fingers on various parts of the body, there arises a sound, from which a conclusion is drawn as to the internal state of the part touched, much practical experience being required to form a correct opinion of the sound produced by the tapping, as it does not invariably furnish an indisputable proof of the strength of the membranes and respiratory organs. To the patient are applied either the forefingers, or, simultaneously, the middle fingers of the right hand; or a very small hammer, called the percussion hammer, a steel instrument which for striking is provided with a pad covered with wash leather. On the part of the body affected are placed either the index and middle finger of the left hand, one only of the two fingers, or a small flat iron or nickel plate of the pleximeter, or measuring instrument. On this metal, or on the sounding fingers, a stroke is given, by means of which, if sound, no pain is occasioned to the patient; but if otherwise, it is to be feared that there are fatty and soft parts, which, in a healthy natural state of the body would emit no sound, as they offer no opposition, the stroke being disarmed by the necessary tension.

As the air contained in the lungs and organs is liable to considerable changes, we judge by the variety of sound revealed on auscultation as to their state. The sound may be full, weak, clear, hollow, reverberating, or non-reverberating, high or deep.

Peritonitis, or Inflammation of the Peritoneum, is very seldom an independent disease. It is generally the result of some other complaint. The malady arises either in an acute or a chronic form. The inflammation may attack either the whole of the peritoneum or only a portion of it. The causes are numerous and varied: Catching cold, injuries and wounds of the abdomen, operations for the removal of unnatural growths (tumours in the womb, ovaries, and so forth), complaints of the female organs, of the kidneys, the bladder, the spleen, the liver, the stomach (cancer of the stomach, tumour of the stomach, etc.), diseases of the intestines, puerperal fever, strangulated hernia (that is to say, ruptures in which the circulation is stopped by compression, etc.).

Acute peritonitis is shown to exist by the following symptoms: Extremely violent pains, either felt on a single spot of the abdomen, or over the whole abdomen, which will not bear even the slightest or lightest touch. Coughing, sneezing, and even breathing cause the pains to become more violent.

The belly is generally very much swollen, and there follow exudations from the peritoneum, which may cause adhesion or growing together of the abdominal organs covered by the peritoneum. The patient suffers from very violent thirst, the skin is dry, and the fever raises the temperature to 104° F., and sometimes higher. The pulse shows from one hundred and fifteen to one hundred and twenty beats a minute; there is also sometimes vomiting, a greenish-coloured mass being thrown up; also, there is either constipation or diarrhœa, and the abdomen on percussion gives forth a dull sound.

Treatment: The fever is treated as described on p. 631. External soothing fomentations, or compresses not too thick, must be applied to the abdomen at from 68° to 72° F., that is to say, if the pains will allow of their application. After the compresses have been changed from four to six times, a stimulating poultice or fomentation is applied for a short time to the abdomen, after which one again applies compresses of a kind to allay inflammation, and so on in continual alternation. In addition to this there should be stimulating half-packs at 66° F., changed every two hours. At night trunk-packs at 77° to 81° F., in which there should be placed extra compresses calculated to allay inflammation of the abdomen. Use also trunk and sitz baths at about 82° to 86° F.,

and hip baths of from 84° to 88° F., also vapour compresses, etc. To counteract constipation, an enema at 82° F. should be given.

One should, however, wait two or three days before having recourse to enemas, as injury may be done by them. The diet is as follows: Lemonade made from fresh lemons, apple water, oatmeal water, and so forth. Solid food must not be taken too soon. The chronic form of peritonitis is characterised by troublesome dull feelings in the region of the abdomen, which are increased by pressure from without. Often there are also stabbing pains, fever in the evening, combined with constipation or diarrhœa and emaciation.

Treatment: Stimulating body fomentations, stimulating packs for the legs, and the General Strengthening Treatment.

Perinæum, Rupture of the. (See "Birth.")

Periods. (See "Women, Diseases of.")

Peritoneal Cavity, Organs of the. (See "Thoracic Cavity.")

Perspiration. (See Index.)

Pertussis. (See "Whooping Cough.")

Phimosis, Paraphimosis.—Phimosis represents an abnormal contraction of the prepuce, occasioning difficulty or incapability to draw it back over the gland; it originates either from natural causes, or as the result of inflammation in those parts, and is often produced by fatty accumulation under the prepuce, generating glandular inflammation, which may impede the urinary and spermatic secretions.

Treatment of a contracted prepuce at birth demands a slight surgical operation, with the diligent application of two or three body baths of 82° to 86° F., or of hip baths of longer duration, at a temperature of 86° F.; later on the laying on of a cross pack of 70° to 82° F. by day and night, renewed every three or four hours, the organ itself being bound with a four to six-fold compress (70° F.), subsequently followed by enemas at 77° F., in connection with rather cooler ones from 64° to 68° F., and a strictly moderate diet.

For further information, see "Gonorrhœa."

Paraphimosis represents a highly-inflamed and swollen condition of the genital organs; the glands being affected prevent the free action of the foreskin. The obstruction of this part of the glans-penis represents a tight collar, and is popularly known (from its fancied resemblance to the instruments of martyrdom) as "The Spanish Gorget."

The condition is not free from danger, as erysipelas may set in.

The treatment is that of "Phimosis," and confinement to bed. (See also "Gonorrhœa.")

Phosphorus Poisoning. — There is a distinction between acute and chronic phosphorus poisoning. Acute poisoning by phosphorus may be produced either from outward circumstances, by burns or other wounds, or by means of taking the poison into the stomach. Chronic phosphorus poisoning most commonly is engendered by inhaling phosphorus vapour in the manufacture of wooden matches, which often break in extinguishing the match with the fingers. This frequently happened in times gone by when phosphorus matches were in general use. The phosphorus entered the system by means of the blood vessels and lymphatic capillaries.

All phosphorus combination does not cause poisonous effects. According to the state of the phosphorus, it is more or less poisonous or quite harmless. Since the substitution of the Swedish matches, "utan svafvel och fosfor," one rarely hears of phosphoric burns through wooden matches. If, however, an accidental burn by a phosphor match is received, the phosphorus is left in the burn till quite extinguished, when it is changed into harmless smoke; or, better still, a small grain of caustic is dropped into the wound, and should it be dissolved by the moisture of the wound, the process is repeated; but if only concentrated solution of caustic be available, a drop is trickled into the wound. If this dries up, a second, third, or fourth drop is introduced, until the surrounding tissue becomes detachable. Instead of caustic, turpentine, or a strong solution of soda, or calcined magnesia, may be used. Then a pack of 73° to 77° F. is laid upon the burn and its surroundings, and in a short time, cautiously applied, a suitable general system of treatment for its withdrawal and removal (partial vapour baths, wet sheeting, graduating packs, body baths, enemas, etc.). If, however, the poison has reached the blood and lymph, with smarting and itching of the burn, swelling, or numerous small streaks of red on the skin, the treatment is employed as in the previous description of blood poisoning, according to individual constitution, three-quarter or whole packs, wet wrappings (Nos. 1 to 4), body or half-baths, enemas, etc., combined with anti-inflammatory packs to the wound and its surroundings, in alternation with local applications

of vapour. The diet should consist of mucilaginous foods — milk, alcoholic beverages — fat or oily food to be strictly avoided.

The introduction of phosphorus into the stomach is chiefly with suicidal intent. The self-injurers generally use the ends of matches mixed in hot milk, coffee, or water, and according to Rosenthal, two to three grains of actual phosphorus drunk is sufficient to cause death.

The progress of the disease is as follows: After having taken the poison it occasions a violent burning in the throat, and extends to the stomach with equal force, producing nausea and occasional vomiting, the abdomen being under severe pressure and extraordinarily sensitive. The vomited mass smells strongly of phosphorus, and is luminous in the dark, and in many instances mixed with blood. Diarrhœa sometimes supervenes, and the fæces are also luminous.

In a few days the phosphorus circulates in the blood and tissues, infecting the heart, liver and kidneys. The urine is of a brownish-yellow colour, and contains albumen. Jaundice supervenes, and delirium, insomnia, and general loss of power, precede death. The treatment should aim at removing the poison from the stomach and large intestine. A physician must be immediately sent for, and acquainted with what has taken place, in order that he may employ the stomach pump without delay. Meanwhile, emetics mixed with oatmeal and lemon juice are administered to the patient, and should sickness not follow, a small quantity of tartar emetic (antimony) in starch, paste, or some such substance, is given as an antidote to the poison. The use of greasy, oily matter, including even milk, must be avoided, as inducing the absorption of the poison into the blood.

An emetic to be recommended is sulphate of copper, administered every quarter-of-an-hour to the patient, in doses of two grains, until sickness ensues, the valuable property of the emetic being that, if it does not immediately cause sickness, it neutralises a portion of the phosphorus in the stomach. After the vomiting, repeated doses of oil of turpentine, two drachms, mixed with eight ounces mucilage and with two ounces of syrup of orange. This mixture is divided into four parts, to be given every quarter-of-an-hour, after shaking the bottle; the patient's thirst to be quenched with oatmeal gruel. Thick compresses, graduating from 73° to 77° F., to be laid on the abdomen, and changed before getting dry. If after vomiting

and applications the poisonous appearances have disappeared, a mucilaginous diet must still be maintained for some time. It is a mistake to think that because of these favourable signs all danger is at an end. The danger exists in the contact of the poison with the blood, and this usually occupies some days; stimulating body packs, bed vapour baths Nos. 2 and 3, stimulating abdominal leg or calf packs, and loosening enemas should be applied judiciously for some time in order to cause a gradual separation of the poison from the blood and tissues. Chronic phosphorus poisoning assumes a totally different clinical aspect to the acute form just described.

The chronic form arises from the use of phosphorus, and is therefore much found in match factories, which, bringing it near the bones, is well known to cause diseases which are not so well known or published abroad. A form of phosphorus is applied to the wood of the matches, which, apart from the risk of explosion and fire, is peculiarly dangerous to the workmen through its poisonous fumes.

Among the symptoms of chronic phosphorus poisoning, the most prominent is necrosis of the jaw-bone. The lower jaw is severely affected, and more frequently than the upper one. The disease begins with toothache, which quickly extends to all the teeth, creates a swelling in the jaws, and rapidly passes into a state of erysipelas.

The treatment must strictly accord with the most prominent features of the cause of the disease. For removal, the treatment is described under the head of "Bone Inflammation" (p. 863) and under "Bone Decay" (p. 851).

Phthisis. (See "Lungs, Consumption of the.")

Physiognomy. (See Index.)

Pine Needle Baths. (See Index.)

Pine Twig Baths. (See Index.)

Pins and Needles is the name given to that peculiar feeling of the skin which usually arises when any external mechanical influence irritates the nerve supply of a large artery. This sensation, which is creepy and prickly, may be caused by disease of the nerve centres of the brain and spinal cord. This is also a prominent symptom in poisoning by ergot of rye. (See "Ergotism, Ergot Poisoning.")

Plague.—Precautions for its suppression. (See Index.)

Plague, Bubonic Plague, Oriental Plague.—The Plague, which exists only in eastern countries, Asia Minor,

Syria, Egypt, etc., in the form of an epidemic, is extremely infectious, and engendered partly by typhus, partly by spleen poisoning, and suppuration of the lymphatic glands (especially when induced with buboes in the region of the groin).

The duration of the disease is seldom more than from six to ten days, showing itself within the first twenty-four hours, frequently as a fatal attack of severe blood poisoning.

The infection is conveyed through foul organic substances, as human and animal filth, and not alone from bodily contact with the patient, but from the bed and clothes, particularly on the slightest removal, and diffused by means of the air.

The disease commences without premonitory symptoms, sometimes simply with cold shivering, and more or less of fever, followed by great weakness, exhaustion, apathy, hallucinations, giddiness, severe headache, and in many cases vomiting.

The patient's glance is wild, staring, glassy. A swelling of the lymphatic glands soon follows, chiefly in the throat and armpits. The swollen glands are discoloured to a greyish, yellow, or black tint (and may be sometimes varied by hemorrhage), being either soft or hard, and developing boils which suppurate; or in the event of not doing so, impart a typhoid character to the disease as a rule.

In other instances carbuncles appear, varying in size and number, on the outer skin (integument), from which the patient suffers intense pain, or if the disease takes a favourable turn, gradually, amidst copious perspiration, the scales of the sores are slowly perforated, and the pus discharged, weeks and months often elapsing before recovery.

If, on the contrary, an unfavourable turn sets in, the patient, as already shown, suffers from the most intense blood poisoning, and often, with full consciousness, meets death without a premonitory struggle.

The treatment is that described in II., Part VI., for "Fever Treatment."

Plethora. (See "Brain, Arterial Obstruction in the.")

Pleura. (See "Lungs and Bronchial Tubes.")

Pleurisy, Pleuritis, or Inflammation of the Pleura.* — Pleurisy and Pleuritis, or Inflammation of the

* By the *pleura* is understood that double-lobed skin or covering that covers both lobes of the lungs. The name "*pleura*" therefore refers to the whole covering sac of the two lungs, since the *pleura*

Pleura, belongs to the category of the diseases that are most common and most frequently met with, and spare neither age nor sex. Although pleurisy may attack even the suckling child, it is very rarely found in young children under the age of two years. Inflammation of the pleura is much more common among men than among women, and is generally met with between the ages of twenty and fifty-five; nevertheless, creeping pleurisy is very often the cause of the death of many an old man, although, as a rule, the cause of death is not rightly recognised. Pleurisy arises in an independent form, as well as an after-result of other maladies.

In the first of these cases the causes are wounds, bruises of the wall of the thorax, fracture of the ribs, injurious external influences of long-standing, such, for instance, as remaining wet through, getting chills, suffering from a cold for a long time, and so forth. In the latter case, disease is the result of inflammatory processes of the organs enclosed in the pleura; the lungs or the neighbouring organs, such as the œsophagus (or food tube); or the organs of the upper part of the peritoneum, such as the liver, the spleen, the kidneys, etc.; also infectious diseases, such as diphtheria, measles, scarlet fever, smallpox, puerperal fever, and blood poisoning, etc.; finally, the dyscrasia of the blood and of the fluids, such as arise in cases of syphilis, gout, scurvy, inflammation of the kidneys, etc., are all capable of producing inflammation of the pleura.

Inflammation of the pleura usually arises only on one side. If it is on both sides, then it is, as a rule, an accompanying symptom of some general malady. In consequence of the many various pathological changes which an inflammatory exudation in the pleura may call into being, pleurisy is distinguished as being either (1.) dry, (2.) moist, (3.) purulent, or mattery. The most frequent form of pleurisy is the dry. In this there is only the swelling of the pleura. The quantity of the exuded blood serum is very small indeed; the slighter cases of dry pleurisy run their course generally without any important symptoms. At the most the patients experience a certain amount of difficulty in breathing when they undertake bodily work. Sometimes there are associated with this, a slight fever, weariness, stitches in the sides, and so forth.

pulmonis, the costal pleura, and the pericardium and the mediastinum are only the names for special portions of the pleura.

More serious cases, however, are characterised by pains in the chest, so-called pleural friction (*fremitus*, or sound of friction), and by a more or less audible and sensible rubbing, which takes place between the membranes of the pleura and the breast.*

This peculiar sound can only in its weaker stages be heard by the use of a stethoscope tightly pressed against the wall of the chest. (See "*Auscultation*.") In the more advanced stages, however, it is audible even at some distance from the patient, and is often distinctly heard by the patient himself. The friction sound can also often be perceived by the pressing on the chest with the hand alone. It feels then as if one were bending a leather sole between the fingers backwards and forwards, or as if one were crushing a snowball in the hands, that is to say, one perceives a kind of cracking and grating. One hears the sound most distinctly, at intervals, as a rule when the patient is taking a breath (*inspiration*), more seldom when he is breathing out (*expiration*). Coughing, slight signs of fever, which may, however, be entirely wanting; cyanosis, or blue colouring of the lips and cheeks, consequent upon the respiration being interfered with; weaker respiration of the affected side of the chest in contradistinction to that of the healthy side, and so forth, form the further symptoms of dry pleurisy. The patient generally lies in bed on the healthy side, because any continuous pressure on the affected side of the chest causes an increase of pain, and he thereby exhibits one of the characteristic symptoms that distinguish dry pleurisy from moist pleurisy, for in the latter case he lies in bed by preference on the affected side. The reason of this last circumstance is, without doubt, to be sought in the fact that the patient wishes to keep the healthy side free for breathing, since on the diseased side, in cases of moist pleurisy, the exudation hinders respiration.

In cases of moist pleurisy, in addition to the swelling of the pleura, there is also an exudation of a serous fluid (that is to say, a fluid like the watery substance of the

* Under normal conditions there is, indeed, also a friction between the folds of the pleura, between the back and the lungs; but here the membranes are so soft and moist that there is no audible sound caused by this friction, through a morbid or diseased swelling they become thicker and rougher, so that when they rub one against the other there arises an audible friction.

blood) from the pleura into the pleural cavity. In its composition the fluid consists, according to the description of anatomists, of serum, of decomposed cellular tissue, of fibrin, etc., and it appears yellowish or greenish-yellow, or like whey; sometimes also bloody when the disease is of long-standing, and then usually of a brownish red or brownish black colour.

Auscultation (listening) at the thorax or chest only enables one to perceive the friction sound at the beginning and at the end of the moist pleurisy, but even then this sound is not so perceptible as in the case of dry pleurisy. Percussion (that is to say, striking on the chest with the finger) enables one to discover that the lungs, in consequence of the formation of a more or less thick layer of exudation between the membranes of the pleura, have been robbed of their power of extension and pressed together, so that they contain less air and give forth a dull sound.*

Since the exudation, in consequence of its specific gravity, is always situated in the lowest portions of the pleural sac, the dull sound is therefore most likely to be perceived on percussion at the lowest, or hindmost, portion of the thoracic wall. When the quantity of the exuded fluid increases, then the dulled sound rises to the front, side, and back divisions of the thorax; finally, one is only able to perceive a bright, clear tone on tapping the very highest and foremost spots of the thorax. Also, the diminished power of transmission in the waves of vocal sound which is perceived in places where the exudation is present, forms a characteristic sign for the recognition of (serous) damp pleurisy. If, for instance, one lays the open hand alternately on the diseased and on the healthy sides of the chest, and feels, when the patient is asked to speak loudly, a light shaking of the thoracic wall on the healthy side, this proceeds from the vibrations of the vocal cords which are continued down to the lungs; on

* An empty vessel containing air gives forth, when its outer wall is struck with the finger, a full, clear tone; a vessel filled with fluid, on the other hand, gives forth a dull muffled tone. The human lungs, which, in their normal condition, are always filled with air, give, on the thorax being tapped, a full clear sound; but if we find, on percussion, a spot giving a hollow, dull sound, we may conclude that the lung in this region contains no air, and that the air has been replaced by something having a greater specific gravity. The sound then is given by this body (in moist pleurisy). The air no longer circulating in that part of the lung causes the dull sound.

the diseased side of the chest, however, this shaking is felt either in a less degree or not at all; it is especially absent when the flat of the hand is laid on the place in the thoracic wall, beneath which there is a larger amount of exudation, since the fluid is not capable of vibrating in the same way as the air does. Further, if one listens alternately at the healthy and diseased sides of the chest, laying the ear now on one side and now on the other, and then tells the patient to speak, one hears, on the diseased side, a weaker sound of the voice, since the exudation that is present dulls the sound. If the exudation of fluid is very considerable, it can even be recognised by the eye; for the portion of the thoracic wall behind which the exudation is found, is immovable when the patient breathes. The respiration is almost entirely brought to rest on the diseased side of the chest, but, on the other hand, is increased on the healthy side, according to the amount of the fluid exuded. The diseased side is more or less increased in size at the beginning of the disease. This is chiefly at the lower portion of the thorax. In consequence of the tension, the skin that covers it is then generally tightly drawn and shiny. Moreover, it is then observed that, as a consequence of a greater secretion of fluid, the neighbouring organs are somewhat displaced by pressure. In cases of pleurisy of the left side, the heart is often pressed out of its proper position on the right side. In cases of pleurisy of the right side, one often finds that the liver is displaced, so that sometimes its lower edge stands out like an arch under the abdominal covering. The inflammatory process is generally preceded by shivering fits; the fever is intermittent, and, according to the height of its temperature, of greater or less importance. Pain is always present; it is chiefly felt on breathing, when friction of the diseased pleural membranes takes place, and it is also increased by coughing and sneezing. One is able to see with what great care the patient is compelled to breathe. Loss of appetite, headaches, constipation or diarrhœa, pains in the limbs, emaciation, weakness, paleness of the face with hectic red cheeks, etc., are accompanying results of the fever of pleurisy. If the quantity of fluid is very great, then the shortness of breath of the patient is often very serious indeed. When the lungs swell out dropsically, suffocation may even set in; where the inflammation of pleurisy is on the left side, inflammation of the pericardium not infrequently supervenes.

The whole inflammatory process, as a rule, lasts, about eight days; then, when the disease is taking a favourable course, fever and respiratory troubles diminish, and there follows a gradual reabsorption (that is to say, a sucking up into the system) of the fluid; nevertheless, sometimes it is observed, even in cases where there has been an apparent cure, that months afterwards a collection of fluid is found in the cavity of the chest. In some other cases the inflammation exhibits a pronounced "creeping" character, and the patients finally succumb to wasting fever.

Purulent pleurisy is markedly different in its course from both of the other kinds described above. It develops either independently, or, which is more often the case, first appears in the form of moist pleurisy, and then develops into the purulent form of the disease. The fluid exuded is yellow, thick, mattery and opaque, and either finds its way out in a discharge through the epidermis between the lower ribs, or breaks through the lungs and the branches of the bronchial tubes, and is then coughed up; or, finally, it sometimes makes a way for itself through the peritoneal cavity, where it sets up peritonitis, often with a fatal termination. In those cases where the pus finds its way out through the skin there arises a tumour on the chest, which gradually takes on the character of an ulcer, and discharges more or less pus. The quantity may sometimes be as much as one-and-a-half to two pints. The composition of the matter may be non-malignant or it may be ichorous. The patient feels relieved by the discharge of matter, and sees his troubles diminish; either the fistula in the chest then closes up after a time and perfect cure comes about, or new pus forms, and the fistula may then sometimes remain open for years together. The patients then, if they are not treated in a way that is in accordance with nature, generally die of wasting fever. The fistula may, however, also cause caries (that is bone decay) of the ribs, and may lead to necrosis in the ribs, to the degeneration of important internal organs, etc.; and thus eventually cause death. But sometimes also a temporary closing of the fistula sets in. After a few weeks or months it breaks out again, accompanied by symptoms of a new inflammatory process. It would, however, lead me too far if I were to attempt to discuss all the manifold symptoms which the outbreak of purulent matter towards the internal vital organs, the lungs, the bronchial tubes, the pericardium,

the œsophagus, the stomach, etc., may produce, for this would take up much more space than is at my disposal for the whole book. Only I will not leave without mention the fact that, in the case of the imperfect cure of pleurisy, the membranes of the pleura often grow together or coalesce, which results in a condition which the patients feel throughout their whole lives, experiencing, as a rule, at every deep breath or violent bodily movement, a stitch in the side, or a pain in the chest of some kind. In any case, patients from whose pleural cavity the whole of the exudation has not been fully removed are always in danger either of inflammation of the lungs, and after months or years, of acquiring tuberculosis, or of perishing from phthisis.

In the treatment to be followed in cases of pleurisy, the most important thing to take care of, in the application of the Natural Curative Treatment, is that dry pleurisy shall not pass into moist pleurisy, and that moist pleurisy shall not develop into the purulent form of the disease. Unfortunately, however, the Natural Treatment, physician often has patients come under his charge who are suffering from pleurisy, but who, as a rule, only come to him after the disease has already made terrible progress, and when recourse to surgical operation has been suggested by the medical physician.

The treatment for dry pleurisy is one that requires the strictest confinement to bed, food that is very easily digested, and a general dietary of a non-stimulating and non-exciting character, and very good ventilation of the sick chamber. Every two or three hours one should give the patient a soothing trunk bath at from 73° to 77° F., and stimulating calf packs at 69° to 73° F. Cold feet make the application of hot water bottles, enveloped in damp cloths, or reclining vapour bath No. 4, necessary; laxative enemata at from 73° to 77° F. keep the bowels in order. The patient should be given in the morning or in the evening, either a trunk pack, 82° to 86° F., and of a duration of from ten to fifteen minutes, or a hip bath from 82° to 88° F., with water at from 78° to 82° F., poured over the upper part of the body for from six to ten minutes. At night a stimulating fomentation for the chest and shoulders at from 78° to 82° F., and calf packs at from 69° to 73° F., should be put on. If the patient is, however, free from all symptoms of fever, then, instead of the trunk bath and calf packs recommended for the day, he can have two reclining vapour baths No. 3, one in the

forenoon and one in the afternoon, or a foot vapour bath (see Figs. 127 and 128), and afterwards he can have a trunk bath or a hip bath.

Damp pleurisy requires, when the amount of the exuded fluid is not very great, almost practically the same hydropathic applications for its treatment as dry pleurisy. If, however, the amount of the fluid exuded is very considerable, and if pains or a high state of fever are present, then one should choose the corresponding "Fever Treatment" (II., Sect. VI.), in which hip baths at from 86° to 90° F., lasting from ten to twelve minutes, taken frequently during the day, hold the foremost place. In the intervals one should apply thick stimulating, and only moderately wrung out trunk packs (see p. 482) as well as stimulating leg and calf packs or reclining vapour bath No. 4. If the patient has only slight fever, then one should apply, instead of the trunk pack, vapour compresses on the front wall of the chest. Of these six or eight can be put on, one after the other, and they must be renewed every ten or twelve minutes. At the same time a strict fever dietary is to be observed. In many cases it is advisable also to make a cautious application of the Dry Diet (Schroth's Cure). When there is, as there possibly may be, inactivity of the bowels, one must not forget to apply laxative enemas.

In the treatment of purulent pleurisy, one should make use of thick trunk packs at from 77° to 81° F., only moderately wrung out, in combination with stimulating calf packs at from 73° to 77° F., or in combination with reclining vapour bath No. 4. Indeed, one may adopt the general procedure recommended for the treatment of the moist pleurisy. (With regard to the local treatment of the abscess, or thoracic fistula, see further particulars under "Abscess," "Boils," and under "Wounds.")

One cannot sufficiently warn patients, and those who have charge of them, against the treatment by damp, of purulent pleurisy, so beloved by the so-called "Scientific" doctors; that is to say, the laying of ice bags on the chest. The inflammation, the suppuration, and the formation of pus are only increased by such procedures (see p. 247). "Science" will never consent to understand this. The internal or external application of iodine, whether in the form of painting with tincture of iodine, or the taking as a medicine of iodide of potassium, the administration of salicyclic acid, etc., are to be equally strongly condemned and forbidden. These

“curative” or “remedial” poisons only increase the troubles of the patient and the intensity of his sufferings. When the membranes of the pleura have become adherent, or when the pleura pulmonalis has become adherent with the covering of the ribs or the costal pleura, in cases of creeping pleurisy, in cases where the remnants of exudations are still present, and so forth, the application of the General Strengthening Treatment, or in the case of powerfully-built patients who can stand it, a modified lowering cure is recommended. Massage of the thorax or chest, and the corresponding active movements of the Health Gymnastics, especially the “Breathing deeply on one side” (Figs. 227 and 228), may be effective in materially assisting the process of cure.

Plica. (See Index.)

Pneumonia. (See “Lungs, Inflammation of the,” p. 1209).

Poisoning. — When a poisonous substance enters the human body, causing it harm, one says poisoning has been caused, and unfortunately this is frequent. Even when poison is not administered through criminal motives, there still remain many possibilities of poisoning. Poison may be administered to the body with suicidal intentions; besides, poisoning often occurs by mistake, through a harmful substance being mistaken for another similar-looking but harmless one; and, lastly, poisonous substances (mostly vegetable poisons) get into the stomach of the homo sapiens, either through ignorance or carelessness. The following should be observed, as it is useful knowledge when one wishes to go to work effectually in a case of poisoning. Firstly, to get the poison as quickly as possible out of the stomach by dint of vomiting; secondly, to prevent the poison that is in the stomach from circulating in the blood and humours of the body, be it through another poison which acts as an antidote (by making the first poison insoluble, or by paralyzing the effects of the same), or through substances that cover the inside of the stomach with a thick layer of mucus; thirdly, to protect the mucous membranes of the mouth, pharynx, œsophagus, and the stomach, from getting burnt by the poison; and fourthly, to prevent any injurious after-effects when the poison has been got rid of. There are poisons that have a burning or corrosive effect, and narcotic poisons that have a stupefying effect. Corrosive poisons are acids (sulphuric acid, muriatic acid, nitric acid, carboic acid, etc.), and alkalis (ammonia, soda, potass, salammoniac, etc.); also phosphorus

and arsenic, etc. Soon after the corrosive poison has entered the human body, violent pains (like those caused by burning) begin in the stomach and the abdomen, and at the same time there is vomiting and difficulty in swallowing. Besides this, acids and alkalies burn the mucous membrane of the digestive channel, from the mouth to the stomach.

Stupefying poisons (or narcotic vegetable poisons) are opium, morphia, belladonna, nicotine, etc. Further, alcohol, prussic acid, strychnine, etc., have a stupefying effect. They produce symptoms such as unconsciousness, delirium, snoring while breathing, etc. Should you be obliged to give first aid in a case of poisoning, you should not lose precious time by giving advice and examining the patient, but immediately try to gather from the patient himself, or from what is near him, the nature of the poison that has affected him; when this is not possible, one should gather the nature of the poison by looking at the remains of the food of which he has partaken, or by examining the vomit, etc., and by the symptoms. When it has been possible to discover what the poison was, send to the chemist where the antidotes are known. In any case it is best to send for the nearest doctor immediately on discovering that someone has partaken of poison. Before the doctor comes you can do something to help the patient, bearing in mind that acids and alkalies are antidotes, any one of them having the property of neutralising the effects of the other. So, when an acid has been swallowed, one should immediately give any alkali that may be at hand, in order to prevent the burning corrosive effect of the acid. A good alkaline antidote is made as follows: Stir soda, magnesia, powdered chalk, flaked white soap, potass, etc., together in some water, till it looks like thin porridge, and let the patient drink plenty of the mixture. Lime water, which is diluted with water, is also very useful in a case like this. Above all, one should try to make the acid in the patient's body become diluted and weak, by giving him a great deal of water to drink.

When alkalies have entered the stomach, give the poisoned person acids, as vinegar diluted with water, fresh lemon juice diluted with water, etc. In order to protect the mucous membranes of the throat, œsophagus and stomach against the corrosive burning effect of the swallowed acids and alkalies, one should let the patient drink plenty of oily and mucilaginous fluids, as white of egg, olive oil, castor oil, almond oil, milk,

flour mixed with water, then oatmeal porridge and barley porridge. When poisoning by either acids or alkalies has taken place, it is most essential that the poison should be got out of the stomach as quickly as possible by vomiting; but as vomiting generally irritates the mucous membrane of the digestive channel anew, the emetic that is given to produce it should be carefully studied. So when a poisoning has been caused by phosphorus, although in this case a cauterisation of the inside of the stomach takes place, one should, above all, prevent the poison from circulating in the blood by making the patient vomit. (Compare the art. "Phosphorus Poisoning.") And this also applies to arsenic, vitriol sublimate, calomel, strychnine, etc., poisoning. One should bring forth the vomit by tickling the throat or uvula with the finger, or with a quill pen (previously dipped in almond oil), or by giving plenty of warm water to drink, to which one may add butter, oil, or a teaspoonful of salt or mustard.

In a case of phosphorus poisoning, do not, when giving first aid, use either milk, or fatty, oily substances. After several vomitings have taken place, give mucilaginous fluids, such as thin oatmeal, or barley porridge, but never any acid or sour substances. A good antidote will be found in magnesia.

Where there has been poisoning by arsenic (compare the article), magnesia is also an antidote; five to six teaspoonfuls of magnesia in a cup of water, and chalk mixed with milk may also be given.

When poisoning has occurred through vitriol, carbonate of lead, quicksilver, oxide of lead, etc., use the same means as for arsenic poisoning. The following are very important in this case, as being efficacious: White-of-egg mixed with an equal amount of sugar water, milk in large quantities, barley or oatmeal porridge, strong black coffee or strong tea, etc. In a case of poisoning by nitrate of silver, one should administer internally a solution of cooking salt; for zinc poisoning one should use a decoction of nutgall, acorn coffee, or ground oak bark.

(In a case of lead or quicksilver poisoning, compare the articles concerning these.)

When poisoning has been caused through poisonous fungi or toadstools, deadly nightshade, colchicum, hemlock, or other poisonous plants having been eaten, one cannot procure an antidote, as there is none. The most one can do is to give

the patient a strong solution of cooking salt to drink. This is particularly efficacious after poisoning by toadstools. In any case, after poisonous plants have been partaken of, which have a stupefying or paralysing effect, immediately make the patient vomit, and endeavour to keep him awake. Therefore give him strong tea or black coffee to drink, also an enema of strong black coffee; pour cold water over him, and rub him continually in a hip bath (having a temperature of 54° to 66° F.); put cold compresses on his head and back; in fact, do the utmost to make the torpid state of the patient disappear. (Comp. II., Part VI., Chap. 6.)

In a case of poisoning by strychnine, the only thing that can be of any help is to procure a stomach pump immediately, and to empty the stomach of its contents. This also applies to poisoning by prussic acid. When poisoning through partaking of bad or decomposed meat has taken place, administer plenty of oatmeal porridge, or freshly-squeezed lemon juice, till vomiting sets in; and after vomiting, give an enema of olive or castor oil, and live for some time afterwards on mucilaginous food, preserved fruits, lemonade, etc. In case the poison has already entered the intestines—this applies to any kind of poisoning—which is discoverable by the pains in the abdomen, swollen stomach, diarrhœa, etc., give emollient enemas at 82° to 86° F., and put hot vapour compresses on the stomach and abdomen. Bed vapour baths (No. 2 to No. 4), full vapour baths, baths in which the trunk of the body is in the water, and sitz baths, should be taken. The patient should remain in the bath for rather a long while, the temperature of the water being 95° to 104° F. (Comp. also the art. “Blood Poisoning.”) When poisoning has been caused by stings of insects, such as poisonous flies, wasps, bees, etc., cover the inflamed parts of the skin with wet earth, or with grated raw potatoes; afterwards oil may be applied to the sore places, and this should be washed off subsequently with vinegar. In many cases an application of onion juice, followed by one of oil, will be found very efficacious. (Comp. also the art. “Alcohol,” “Stings of Insects,” “Suffocation,” “Bleeding,” “Stomach, Inflammation of the” and “Snakebites.”)*

* If an indiarubber tube happens to be at hand, it may be turned into a stomach pump (representing one in a primitive form), and may be found very useful. The tube should be eighteen to twenty-one

Poisoning, Arsenical (Chronic) is usually found amongst miners, workers in factories where green pigment is manufactured, dyers, painters, workers in shot factories, glass and nickel works, etc., where the poison is inhaled or taken into the stomach in the form of dust or vapour. In every-day life chronic arsenical poisoning is mostly caused by colour containing arsenic (as by prolonged presence in a room, the wall-papers of which contain Scheele's or emerald green). The patient generally in the first stage of this form of poisoning feels exceptionally well and strong, and looks in the pink of condition; very shortly the reaction follows; loss of appetite, a metallic taste, excessive thirst, nausea, pains in the head and stomach, colic, diarrhœa alternately with constipation, debility and wasting, nerve-pains, cough, hard-breathing, dry, hard skin, falling off of the hair, etc.

The treatment of this trouble must be by removing the cause, and then making use of the General Strengthening Treatment (see under this heading in Index), beginning with mild whole ablutions, bed vapour baths No. 2 or No. 3, short-timed three-quarter packs, body baths, etc., and this should form the principal part of the treatment.

Poisoning by Decomposed or Bad Meat. (See "Poisoning.")

Poisoning, Ergot. (See "Ergotism.")

Polypus. (See "Tumour.")

Pollution, Involuntary.—This usually happens to chaste, pure-living men and boys at night, during voluptuous dreams, and is, as long as it is limited, not a disease; on the contrary, it induces a feeling of relief and refreshment, and the body is freed from an accumulation. But it is a disease when the act is frequent, and, instead of resulting in refreshment, is followed by a disordered mental and physical condition. It is rather difficult to decide what is the just medium. Constitution, temperament, diet, and

inches long, and about one-third of an inch in diameter, and one should proceed to apply it as follows: The patient should not be insensible, so as to be able to swallow, and be made to swallow one end of the indiarubber tube; the other end is to be held up high over his head, a funnel put into it, and by these means about one quart of water, from 82° to 86° F., should be poured into the stomach. After this the end of the tube must be turned downwards, when, in most cases, the fluid will again run out of the stomach. Repeat this proceeding several times.

other causes, must be taken into consideration, and it may be stated that it, as a rule, occurs most frequently in lively temperaments and strong constitutions, after the use of rich and albuminous food and strong drink, and abstention from sexual connection. Undoubtedly it is a disease when it occurs night after night, sometimes repeatedly, without the ordinary inspirations. It occurs also by day in going to stool. It is caused sometimes by seeing pictures and statues, indulging in vicious thoughts, or by the friction of the clothes. *Spermatorrhœa* is the highest degree of the disease. Women are sometimes afflicted with it in dreams, naturally with rather different results. The causes of this disease may spring from those of the sexual organs or of the neighbouring organs (catarrh of the bladder, hemorrhoids, etc.), of the brain and spine, and in constitutional disorders, but self-pollution is the principal cause. In women this disorder arises from catarrhal affections of the uterus and other causes. The general symptoms are: General attenuation, weakness, dry skin, relaxed muscles and weakness of the same, dragging gait; dull, sunken eyes, with blue circles around them; congestion in the head, dizziness, singing in the ears, weakness of the bladder and digestion, indifference to everything, especially to one's duties; palpitation, shortness of breath, etc.

The treatment consists in judicious application of the General Strengthening Treatment. As the fundamental disease must be taken into consideration, much depends on its nature. The patient must live temperately, avoid heating food, alcoholic and narcotic drinks, sup in good time, sleep on a mattress (no feathers), not on the back, but on the right side, and pay great attention to his habits, occupying his mind with wholesome thoughts. Water applications that may be recommended are as follow: Two or three body baths a day, temperature 77° to 82° F., or, instead of these, sitz baths (81° to 85° F.) lasting ten minutes or a quarter-of-an-hour. Never take a bath just before going to bed. When the symptoms have subsided, place nightly stimulating packs on the loins and calves. Practise once a day the exercises No. 6 Course of the Curative Gymnastics. As this disorder specially attracts patent medicine vendors and quack doctors, who praise all sorts of possible and impossible remedies, I will not omit to emphasize the utter uselessness of these puffed up "infallible" remedies.

Podagra. (See "Gout.")

Portal System.—The digestive organs receive their oxygenated blood from three large arteries springing from the abdominal aorta, viz., the intestinal artery, or “Receptacle,” and the upper and lower “Mesenteric” arteries. (Fig. 310n.)

These give off many branches in the intestines, finally forming a capillary network (Fig. 310 o), from which spring the splenic, gastric and mesenteric veins, into which blood from the liver is impelled. Immediately below the liver the three veins unite in one large tube or trunk, called the portal vein (Fig. 310p), and empty themselves into the liver, which here divides and subdivides, eventually forming an enclosing network (Fig. 310 q) round the liver cells, and emptying into the hepatic veins (Fig. 310r, and 415 and 21). The hepatic veins empty into the inferior vena cava, whence the blood flows into the right auricle. The portal vein, as we have seen, has a network at its origin as well as its terminus (Fig. 310 o and q), into which all the remaining blood vessels either distribute themselves, or from which they issue forth. The blood which flows from the thoracic duct into the liver is richer in colour and fibrin than that of the other veins, whilst that from the liver (Figs. 415, 16) flows more clearly, and is richer in embryo corpuscles than in the other veins, consequently the blood in the portal vein has become purified in the liver. The waste matter and old corpuscles left during this process go to the formation of gall. Interrupted blood circulation in the portal vein will therefore produce congestion of blood in the digestive organs, deficient action of the gall, and other anomalies. The whole of the blood vessels which receive the venous blood from the digestive organs, and conduct it into the filtering and gall-producing organ, the liver, has been named the portal venous system.

Portal Vein, Inflammation of the (Ulcerous).—

The ulcerous inflammation of the portal vein generally depends on the development of another ulcerous inflammation in the abdominal organs, the stomach, the blind dilatation of the large intestine (cæcum), etc., the complex symptoms varying according to the character of the primary disease, but the leading symptoms are usually pain in the liver and region of the stomach, shiverings, high fever (105.5° to 107° F.), profuse perspiration, after which the temperature of the body sinks, restless sleep, delirium, diminished urine secretions, etc.

A conspicuous enlargement of the spleen is observable, not infrequently followed by jaundice and an enlarged liver. The disease is ordinarily of brief duration, ending fatally in most cases.

The treatment is that for fever, as described in II., Part VI.

Portal Vein, Contraction or Closing of the. —

If the portal vein becomes impeded or even closed through congestion, the same condition occurs in all the organs which empty themselves into the duct, spleen, stomach and intestine, varying in intensity and gradation.

The cause of the contraction or closing of the vein may exist in liver disease or tumour in the surrounding organs which press upon it. If only a few and slender ramifications of the vein be impeded, no great inconvenience generally results. If, however, the trunk of the vein, or a number of its branches within the liver, be affected, the results are enlargement of the spleen, vomiting, and voiding of blood.

The treatment is identical with that for Jaundice (p. 1160).

Potatoes. (See Index.)

Pregnancy, Disorders incidental to. — Pregnancy does not always run its course as evenly and untroubled as nature designs. Under the influence of civilization and culture, the female organisation has continually changed from its original natural state, and an abnormal condition of the blood and nerves has set in.

In every constitution there are, to a certain degree, anomalies which, during pregnancy, become diseases of many kinds. Pregnancy does not only involve important changes in the internal sexual organs, and organs closely connected with them, but every organ in her body and its functions undergo actual change. The nerves are attuned afresh, which is shown by a changed, enervated, mental and emotional condition. Many women become tearful, capricious, melancholy, weak in mind and understanding, and often subject to fear of death. Others, on the contrary, are brighter, sharper, and of good hope. The discordant nerves betray themselves in delusions of the senses, convulsions, pains in many places, insomnia, or drowsiness, inertness, impetuosity in will and deed. This gave rise to an opinion — whether right or wrong we need not decide — that pregnant women could not be regarded as accountable. At any time the changing moods and anomalies in character often claim great forbearance and indulgence from those around them. The blood at these times

is of a more venous character, the admixture is increased, is more fibrinous, and the result is full habit, congestion in the head, dizziness, palpitation, and swelling of the arteries. The circulation is impeded in many ways by the pressure of the womb caused by its extension. The skin also undergoes changes. Its power of throwing off moisture is lessened, and consequently freckles and spots break out. The far-reaching changes to which the organisation is subject during pregnancy are best shown by the frequently remarked fact, that certain existing diseases of the lungs, skin-nerves, or cancer, seem to pause during pregnancy only to break out more severely after the birth. The changes thus described must inevitably influence the normal health, and induce more or less serious complaints, according to the constitution, disposition and conduct. The appearance of these disorders has given rise to the widespread erroneous opinion that pregnancy is a condition of disease. There are, in fact, many women, who really do consider themselves ill, who take all possible care and precaution, with exaggerated anxiety, about themselves; use internal and external remedies, yes, even apply particular cures for it, and give up their ordinary sensible modes of life. That such ridiculous treatment of a normal condition must bring about the worst consequences, both to mother and babe, is evident, and a great number of troubles arise from "treatment" of pregnancy. The disorders that occur most frequently are local pains, particularly in the head, teeth, and loins; fainting, constipation, diarrhœa, nausea and sickness, colic, urinary troubles, cough, flow of saliva, congestion in the head, convulsions, varicose veins, inflammatory swelling and pains in the mammary glands, eruption on the nipples and round them. All these troubles enumerated above require a mainly dietetic treatment for their alleviation and cure, which has already been indicated in my article, "Pregnancy." Should any further palliative measures be required on the basis of the Natural Curative Treatment, instructions are given in the single articles of the third volume of this book, which treat of the principal disorders enumerated, and should be carefully followed. But the vigorous application of cold water and of vapour must be avoided, as the question now is, not acceleration of the transformation of matter, or of creating reaction, but the extermination of a troublesome symptom in an otherwise perfectly normal physiological condition. The principal applications of water are, the gentle use

of hip and other baths, ablutions of the whole body, stimulating packs on body and calves, bandages round the body, packs on the loins, vapour compresses and opening enemata. No aperients whatever should be used, as they may very probably bring on miscarriage.

Pregnancy, Mode of Life during Pregnancy.—

In the beginning of the preceding article on "Pregnancy," I pointed out that this is no diseased condition, but rather a perfectly natural outcome of previous preparation. But it is the duty of a woman so to act during her pregnancy that the natural condition and the course of pregnancy may be undisturbed. A careless and irregular course of conduct (owing to prejudice and ignorance) during a normal and healthy condition of a woman, not only renders her susceptible to many troubles and disorders, but may lead up to an unfortunate ending to her pregnancy. It may be that some advice as to the best mode of life at this important period of her existence will be welcome to my lady readers.

It is best for a woman not to give up her usual routine too soon or too suddenly, as long as she feels that it suits her (should such routine be injurious, the sooner it is renounced the better). This applies specially to her food. It is best to eat food that has hitherto agreed with her, avoiding spiced and heating meat and drink, which have a great effect on her blood and nerves, and on the development of her child. She must also be careful to avoid excess, even in good and wholesome food. Many women eat too much at these times, under the mistaken idea that they have to eat enough for two. That this must have an injurious effect upon both is evident, as only that nourishment which has been perfectly digested and distributed in the blood and tissues can be of any use to her offspring. But any excessive food, by introducing foreign matter, may detrimentally affect the nourishment of both. (Comp. I., Chap. 4, "When, how often, and how should we Eat and Drink?" as well as I., Chap. 22, "General Rules about Health.") At the first stage, and towards the end of pregnancy, the digestive organs are considerably upset. This is why it is advisable to take very plain food. The nearer the hour of delivery approaches, the earlier should supper be taken. Pregnant women often have a great longing for unusual things. If these things are not unwholesome, they may be eaten. But food and drink that disagree with her must never be taken, even under guise of sociability (p. 46).

If possible, it is best to give up coffee, especially if there be either a full habit or constipation.

A judicious diet, however, will only accomplish its work if taken in conjunction with bodily exercise, suitable to the woman's strength, and a cheerful life in pure, fresh air. If she adopts a sedentary life, she lays herself open to troubles in the abdomen, which will have a bad effect on the child. Severe, painful, prolonged labour, is often the consequence of sedentary habits during pregnancy. Therefore lighter domestic duties, which do not require sudden, violent, or straining exertion of the muscles, are very good for a pregnant woman. She should rest after any exertion, in a semi-recumbent position, on an easy chair, or on a sofa, and put a sofa cushion under her back if she feels any pain or pressure there. She should avoid any movements that shake the body, that tend to displace the internal organs, that strain the diaphragm, or that accelerate the pulsation of the heart or lungs, and also avoid using certain muscles, such as those of the abdomen and thighs, in any pronounced manner. Therefore, she must neither jump, hop, run, dance nor ride, avoid any sudden bending or stretching of the body, especially of the arms in reaching. Walking up or down hills or stairs must be avoided, in fact, any active, hasty straining, or sudden movements. Nor should she lift heavy weights, such as children, or pull out and push in heavy drawers; nor, again, sneeze violently, or cough or laugh immoderately. She should take outdoor exercise by means of a gentle walk, but she must on no account extend it till she is exhausted, and should rest after each walk in the house. Driving is not so good as walking in its effects. But if drives are taken, good level roads must be chosen, not hilly ones. Good fresh air, inhaled as long and as often as possible, affords pure, invigorating, and healthy blood for herself and child.

A great advantage arising from bodily exercise is that constipation, almost always attendant in pregnancy, is obviated. Should it, however, come on, it must not be allowed to continue through a second day, but apply relieving enemas, 77° to 81° F.

As regards the clothing, it should be warm and suitable. Corsets and garters should never be worn. It is hardly necessary to point out how injurious it is to a woman's body to wear stays (comp. the art. "Women, Diseases of," p. 1489) at any time, but much more so during pregnancy,

when breasts and womb require suitable room for expansion. Tightly-drawn garters prevent circulation, and encourage the development of clots of blood in the veins. A flannel or knitted vest, reaching to the waist, fitting comfortably, warming the body and supporting the breasts, should take the place of corsets. A broad and well-shaped woollen belt keeps the abdomen warm, and by its equal pressure on all sides serves to support its weight. Women with prominent abdomens should never be without one of these belts, as it presses back the intestines, and thus prevents their pressing on the womb. It also assists walking, which, to prevent shambling, is often done with a backward bend of the body during the last months. The thighs should be kept warm and protected from cold; flannel or knitted woollen drawers, and an elastic knitted petticoat reaching to the knees, will do this. Heavy skirts and tight bands must be done away with. If any cold is felt, a long, fine, knitted vest will diffuse a pleasant warmth throughout the body. Warm feet are essential, and they can be kept so by woollen stockings and well-fitting porous shoes (comp. I., Chap. 11, "What shall we Wear?").

The skin may be cared for by using frequently sponge baths 82° to 86° F., tepid baths 91° to 95° F., stopping in fifteen to twenty minutes, or hip baths 82° to 86° F. (p. 531). The use of the last differs a good deal, owing to troubles brought on during pregnancy, which will be discussed in the next article. At those times when menses (under other circumstances) would appear, no bathing should take place. This applies especially to the third and fourth months, when miscarriage is to be guarded against. All women, married or unmarried, should be careful to refresh and cleanse the outer sexual parts by daily ablutions in cold water; much more so is this incumbent on a pregnant woman. If she is accustomed to cold water, she should use it at 64° to 68° F., for this purpose; but if not, she can begin by using it at 77° to 81° F., going down steadily to 64° to 68° F. A bidet is very convenient. (Fig. 109.)

In addition to the other parts, the woman must pay great attention to her breasts, which require increased warmth, with a view to their proper development and preparation for suckling. I have spoken about this in the article "Women, Diseases of" ("Female Breasts, and Care of the same," "Sore Breast Nipples," and "Breast Nipples"), and I beg to refer the reader to these.

A regular life, as regards the daily balance between work and recreation, or waking and sleeping, is very important to the health of a pregnant woman. She should retire to bed in good time, and sleep at least eight hours. She should only sleep in the daytime if there is an unspeakable longing for sleep, caused perhaps by fatigue after bodily exertion. At this time she will experience an unusual desire for sleep, but will find it best to limit her nap as much as possible. If she gives way to it, it will become a habit, and will spoil her natural strengthening night's rest. The sleeplessness that thus results brings with it sickly feelings, irritability, and bad temper by day (comp. I., Chap. 12, "How must we Sleep?" and I., Chap. 22, "General Rules about Health"). Partial or total abstinence from cohabitation during pregnancy is of the very highest importance to the health of the mother and the development of the child. This should be specially observed at the time when the menses would, under other circumstances, be due. In the third month, cohabitation may so excite the sexual passions as to produce a miscarriage. It is a very delicate question, and I venture to quote the important opinion of Dr. Rosch, believing that mistakes regarding the conjugal relations are not corrected by silence owing to false delicacy, and that it will give rise to thought on the part of many of my readers. This famed and experienced physician expresses himself as follows in "The Fundamental Cause of most Chronic Illnesses, especially the Chronic Diseases of Women:"

"The fructification of the female at the right time is natural, but cohabitation when once she is pregnant, is not natural, and draws upon it all the ill effects which we daily experience, for which we have neither name nor remedy, and about which so much is thought and written, and of which the cause has been hitherto overlooked, for it is too near. It is a truth that will confound many, but will gladden the heart of the true man, since he has it in his power henceforth to be happier, to imagine himself in Paradise if he so wills it. Many physicians have approached this great truth so closely in their works, that one would have supposed they must stumble on it; but they passed it by. Yes, in his wisdom man has made unnatural connection even into a law, and bears the consequences of this monstrous crime, in which he has the advantage over the beasts of the field. Whatever gives man the exclusive privilege of scorning the strictest laws of nature with impunity, and how can he be so blind

as to rank this breach of natural laws as one of his duties, this wanton disturbance of health as a marital right? How came legislators to omit imposing pains and penalties for the commission of this heavy offence? This may startle many a man who, until now, has been under the delusion that he was but fulfilling his duty, and he seeks arguments to justify his mistake and crime. Let him study the lower animals, and learn from them; then let him go hence and practise what he has been taught, in perfect consciousness that his standpoint is more dignified than the crass ignorance that placed him far below the animal. Take a male animal to a pregnant female animal. If it is in the first stage after conception, he will show some desire, and will try to establish a connection; but the female will have none of it. She will defend herself. Only such animals as dogs, etc., which are capable of further fructification, and produce several young ones, each resembling a different father, will permit a second connection. Quite shortly after her conception, her sexual organs may yet retain so much vitality that she does allow it a second or third time. But in a very few days nature takes another course, or, rather, the course assumed directly on conceiving becomes marked, the deed, so to speak is complete, and the animal bears herself accordingly. But only intelligent man can err, and he does. He believes himself entitled to his enjoyment; he imagines that he is obliged to attest his manhood by repeated cohabitations, and in the first weeks of his marriage lays the foundation of hitherto unutterable sufferings, which first attack the wife, and later, after her constitution has modified the sufferings, react upon himself and the entire family life in a fearful manner. Complications and misunderstandings arise which cannot be solved until this sin against nature is taken as the key. The act of generation, of calling a being into life, is triumphantly celebrated by nature; she endows it with great attraction worthy of such a deed, by which she maintains the world. This instinct of propagation of the species is as powerful, as important as that which prescribes their path around the sun to the heavenly bodies. This is why the greatest enjoyment of animal life is connected with it; this is why it is coincident with the climax of man's existence, and marriage is the highest point in his life. But from this arises the fact that the pleasures of sexual love are not instituted with the aim that they shall be the enjoyment of idle hours, but that this mighty,

holy instinct shall be only the means in attaining a great natural end. The enjoyment of food, of sweet sleep itself, is not the aim of a design, nor does the law enjoin man to eat and drink continually; still less is sexual intercourse in itself the end or aim, but is merely a means in the perfect development of human nature. But if a wife has conceived, then the end is attained, and any further "siege" is not only futile but injurious. She ceases to be capable of any pleasure, the female organs lose their sensitiveness, she ceases to respond as before, a certain proof that nature forbids the woman further pleasure. A man is differently constituted; he can continue to fructify at certain times if he can find the right woman; yes, he becomes, through passion of another kind, imperious in his demands, but the laws of monogamy are an obstacle, and to balance this misfortune, "marital duties" are laid down, and condemn the man as well as the wife to unnatural proceedings. Through this mistake, which only appears to be justified because it is so old and so general, cohabitation does not cease during pregnancy. It is supposed to be one of the duties of the wife to refuse her husband nothing; it is one of the duties of a respectable man to persist even when nature forbids, and for weighty reasons. But as the woman has lost all capacity until the child is born and weaned, until her nature has performed every duty to her offspring, she endeavours to force her passions, for she considers it her duty, and her belief triumphs over her own nature. The phantasy, the remembrance of the original enjoyment, has a part in it, and she helps as far as she is able; but in vain, she cannot succeed as before her conception, as she now cannot conceive again. Friction, it is true, rouses the female sexual organs, and it seems as if the acme of enjoyment would be attained; but it is not; her receptiveness is gone, and further connection is nothing more than an injurious continual excitement of female nature without any natural object. I shudder at the name which this fulfilment of "conjugal duties" deserves; but the seeker after truth may not draw back wherever she may lead; he may not flinch from the truth that does not please him, and so be it uttered, 'Cohabitation during pregnancy is neither more nor less than what we understand by the term onanism.' Let him who doubts it after this compare the diseases that arise from onanism with those we are now treating, and he will find there is no difference. Yes, it is a worse act than the actual self-defilement, for it

injures three persons, the father, the mother, the unborn babe. A brooding hen will have nothing to do with the cock, and she does no more than keep the eggs warm; but the wife whose body bears the embryo child, whose blood nourishes it, must play a role that is an insult to her motherhood, for it injures the germ she carries within her and prevents its development; the father is the child's first enemy, and that because it is his—duty—. Has the world ever harboured greater nonsense than this? And dare we speak of culture in a world that has let a mistake exist so long, a mistake that is so palpable and that is so fatal? It is, indeed, a humiliation to recognise this truth, and remember the practice up to the present time. It is something like the first man felt when the searching eye of his Lord fell upon him, and the thought he could hide himself in his shame. But all this cannot overthrow the proposition that man, as long as he continues to follow his present convictions, and uses his generative powers otherwise than to call a being into life, will have to suffer the consequences. He does suffer in the fact that his act is fruitless, not so much directly, as an unfruitful act at proper times does not hurt him, for it is nothing else than the natural satisfaction of a natural desire. But even in this act he goes through every stage of generation, and it generally ends in exhaustion as in actual generation. But this is just the point where the two natures, that once were so united, are at variance, for the man is relieved and retires refreshed; but the wife, hardened to a certain point, desires further flame from her husband, which would be useless even if he had it. So the act ends without satisfying expectations, especially on the woman's side. If this futile act is repeated, and the man is fiery and rough, the wife soon feels that something is not as it should be, that she is incapable of being to her husband what he has a right to expect her to be, and she is discontented, unhappy, or she shifts the blame on him, considers him wrong in so frequently insisting on completing his task; she thinks she is unsuitably married, dissatisfied, and does not see that the ground of discontent rests solely on nature's opposition through cohabitation during pregnancy. Now symptoms appear in an extraordinary variety. These are generally hysteria, miscarriages, bad confinements, unpleasantness, melancholy, madness, quarrelsomeness, displacement of the womb, consumption, cancer, premature decay, want of child nourishment, white discharge, uterine mania,

and many other diseases that are merely variations of these. Although many gifted men have called woman a riddle in prose and in verse, though they have declared their nature unfathomable to us all, mystery is cleared away from the entire sex." Thus far Dr. Rosch. Of great importance to her own health as well as to her unborn child, is the spiritual, mental and emotional state of the pregnant wife. By realising the idea, says a prominent lady doctor, "That not only her physical body but her mind and its emotions, constitute world and time to the child within her; that her clouded mind and stormy temper raise cloud and storm in the physical world of the tender, quiet, and mysterious living creature within her, helps a moral woman to place herself in such a condition of spontaneity and self-control as enables her to put far from her every rousing passion, as anger, fear, jealousy, excessive joy, and every depressing feeling which is enervating to blood and nerves, and to temper and overcome the disposition for contrast and extremes, likes and dislikes, so deeply implanted in a woman's nature." May these words act as a warning to all pregnant women, and encourage them to create and preserve that degree of gentleness which she hopes one day may be the possession of her child. She should endeavour to attain, as far as possible, to good frame of mind, and preserve a harmonious, pure and good disposition, so that the growing child may thrive in the atmosphere of a pure soul.

Pregnancy, Rules for the Pregnant. — This period is of such very great importance in a woman's life, and is of such weight as regards her health and her entire future, that any unsuitable action during the time may bring upon her varied and terrible sufferings. During pregnancy her constitution undergoes an entire revolution, and requires some alteration in the usual conditions of life.

It is a perfectly natural condition, for which the female organisation is fully prepared, in form, organs and functions, which, according to Mother Nature's wise laws, does not weaken the woman, but imbues her with greater strength, and renders her healthier, and only the mistaken life of the present day gives rise to the notion that this condition is a somewhat sickly change, yes, and may even be regarded as a disease!

It is not within the region of this work to describe the actual cause of fruition. I have said all that is desirable

under the heading "Women, Diseases of." It is most important that every wife should notice the date of her conception, on the one hand, that she may regulate her habits according to the periods of pregnancy, and, on the other, to calculate the date of her delivery as nearly as possible. All fixed rules as to this are merely hypothetical, and will remain so, as very few wives, and only those who have been pregnant repeatedly, possess the faculty of deciding by observation of their own condition, or by outside symptoms, the precise occasion on which she conceived. All those signs which one is apt to regard as proofs of the case, such as general lassitude, drawing pains in the abdomen and thighs, abnormal sleepiness, shivering and trembling, excited desire, etc., have hitherto proved deceptive. It is therefore only possible to fix the possible date of a confinement by that of the first absence of menstruation, always supposing it to have been regular hitherto, and to accept that as a probable data to reckon from.

As a rule, the period of pregnancy, from conception to delivery, is forty weeks, or two hundred and eighty days. A woman generally reckons forty weeks from the beginning of the last period of menstruation, and her confinement generally occurs within the days in which the menstruation is absent for the tenth time. The more regular these courses have been, the more correct the reckoning. (But pregnancy may be shortened or lengthened.) If a correct calculation at first is impossible, owing to previous irregularity, the first movement (quickening) of the child must be noted, and twenty to twenty-one weeks later the confinement will take place. There is another way of reckoning, which is perhaps even better. Count back from the first day of the last menstruation three calendar months, and to the date arrived at add seven days. This date will give the probable day of confinement. To give an example: Let us suppose the last period began on the 28th of September, count back to the 28th of June, and add seven days. The 5th of July will be the date.

The changes which the womb undergo during pregnancy are indicated by the following signs:

In the first month a sensation of fulness in the abdomen, warmth in the sexual organs, enhancing the sexual impulses. In the second month the abdominal region appears flattened, the womb has receded into the cavity of the pelvis. In the

third month there is a visible rising in the abdomen, the womb advances outwards, the breasts swell, the nipples and adjacent parts become darker; in dark people, dark brown; in fair ones, dark red. In the fourth month the womb again comes more forward, and the abdomen is more arched. Slender women can, by touch, feel the child above the pubis. The stethoscope reveals a blowing sound, occasioned by the dilated and fully-charged blood vessels of the womb. In the fifth month the womb has taken its place between the pubis and the navel, and it feels like a round mass. The abdominal region is swollen on both sides, and is most curved under the navel. In the sixth month, by laying the finger on the under edge of the womb, the movements of the child may be felt. In the seventh month the womb extends upwards one-and-a-half to two inches beyond the navel, of which the indentation is hardly visible. By auscultation the pulsation of the child's heart may be heard. The breasts swell more and more; sometimes a little milk exudes. In the eighth month the womb is placed between the navel and the cavity of the heart, a little inclined to the left side. The navel is now quite flattened. The child's outlines can be discerned by touch. In the ninth month the womb has reached its highest position. The navel appears drawn forward. The usual position of the child's head is close behind the pubic bones. In the tenth month the womb sinks again—its base resumes its position near the navel. The cavity of the chest, which in the ninth month became narrowed by the highest position of the womb, is now free. The womb contracts around the child. Feeling by touch shows the general outlines of the child's form. Birth is now imminent. (See "Birth.")

Premature Birth. (See "Miscarriage.")

Presbyopia. (See "Eye Diseases," p. 1024.)

Priessnitz's Treatment. (See Index.)

Professional Diseases. (See "Trade Diseases.")

Prolapse of the Rectum. (See "Anus, Prolapse of the.")

Prolapse of the Womb. (See "Women, Diseases of.")

Prolapse of the Vagina. (See "Women, Diseases of.")

Prostate. (See "Glands.")

Psoriasis. (See "Tetter.")

Psoriasis, or Scaly Eczema, is likewise a chronic skin disease, which is of just as common occurrence as is weeping eczema. In this disease a large number of white scales, or of scales that glitter like mother-of-pearl, are formed close one upon another on a reddened and easily-bleeding foundation of skin. The formation of the scales goes on increasing until the disease has reached its culminating point; it then remains stationary, when the disease lasts for a long time, or may even, perhaps, diminish again. The eruption appears at first in the form of small red, somewhat raised, points, which then, as they gradually attain their larger size up to that of a lentil, at the same time take on a circular appearance like drops or coins, spreading over a greater or less surface of skin, on which they form the most varied figures and patterns. Only at the beginning of its appearance is the eruption accompanied by a moderately irritating itching, which entirely disappears during the further course of the disease. The favourite sites of psoriasis are the elbows and the knee-joints on their extensor sides; but still, the nape of the neck, the face, and the hairy portion of the head, as well as the ears, are often occupied by it. The inner surfaces of the hands, as well as the soles of the feet, are, as a rule, not attacked by the genuine form of scaly eczema of which we are here speaking, and therefore form a diagnostic sign to enable one to distinguish between the non-malignant and the syphilitic form of this skin disease, in which latter these parts of the body invariably are attacked by the eruption. Psoriasis is, indeed, hereditary, but not contagious. It generally appears after the fifth year of life, seldom earlier. Sometimes the eruption is only shown in the form of a few spots, which, by the unsuspecting, are often hardly taken any notice of. Sometimes greater parts of the skin are attacked, so that, relatively, very little healthy dermal tissue remains. This skin disease is never dangerous, but very annoying by reason of the gradual disappearance of the smoothness of the skin, which becomes easily broken and full of cracks. Cure is only brought about slowly and gradually. A cure requires great patience and perseverance on the part of the patient, the more especially since, during its course, fresh outbreaks set in.

The treatment is the same as that for the removal of ichthyosis, of which we have already spoken on p. 1139.

Pulse. (See Index.)

Pus. — When in the case of an inflammatory process the swelling becomes tense, the pains in it partaking of the nature of pressing and throbbing, this gives evidence that the process is turning from inflammation to suppuration. There is then formed in the tumour a thickish yellowish or green-yellowish fluid, of about the consistency of cream, and vapid sweetish taste, and peculiar smell, which is called pus. The pus contains a large quantity of albuminous matters; but although one often finds remnants of decomposed tissue, it by no means represents a decomposition of the inflamed tissue, as is very often erroneously believed; it is an exudation of white blood corpuscles from the finest blood vessels. A distinction is made between benign, or non-malignant pus, and malignant pus, sanies ichor, which is sharp and irritating, and injurious to the surrounding tissues and to all parts of the body that come in contact with it.

Pustular Eruption. (See "Herpes.")

Putrid Fever. (See "Typhus.")

Pyæmia, or Suppurative Fever. (See "Blood Poisoning" and the two cases recorded on p. 640.)

R.

Rabies. (See "Hydrophobia.")

Rachitis. (See "Rickets.")

Rain Bath. (See "Shower Bath.")

Reclining Vapour Baths. (See Index.)

Rectum. (See "Digestion, Organs of.")

Rectum, Catarrh of the. (See "Intestine, Catarrh of the, Acute.")

Rectum, Inflammation of the. (See "Intestine, Catarrh of the.")

Regeneration Treatment, Abstaining Treatment. (See "Hunger and Thirst Treatment.")

Relaxation. (See "Debility.")

Retracted Nipples. (See "Women, Diseases of.")

Rheumatism. — The word "rheumatism" is at present of so comprehensive a character, including such a variety of diseases, that its real meaning is scarcely defined. Public opinion therefore gives its own idea of the nature of rheumatism, and generally considers it to mean a suppressed skin moisture, which changes into virulent acidity of the blood and tissues, settling in the sinewy parts of the limbs and

muscles. From the up-to-date ideas of the scientist, we divide the complaint into three classes: Acute Rheumatism, Rheumatic Arthritis, and Muscular Rheumatism.

Acute rheumatic arthritis is very rarely the result of a single cold or chill, but of a succession of colds, and exposure attendant on fulfilling the many demands of life; long occupation of rooms with damp walls or cold, damp flooring, where laundry work is pursued, and other employment conducive to febrile rheumatism in the limbs. The complaint attacks both sexes, chiefly between the ages of thirteen and thirty-six. The disease in many cases gives warning of its approach, in the shape of weakness, shivering and chill, producing pains throughout the whole body, its peculiar feature being that it sets in with fever of from 102° to 105° F. During the illness the temperature is very irregular. Simultaneously it attacks the main limbs with violent pain, redness and swelling, chiefly settling in the shoulder, hand, elbow, foot and knee-joints, more rarely inflaming finger and toe-joints, its prominent characteristic being loss of power in springing or active movement. During the day, perhaps a hand and both foot joints are seized, and on the morrow the other hand and knee-joint are red and swollen. The other parts of the body also are affected sympathetically, and when the complaint is modified in one limb it often violently assails another, the affected limbs, as a rule, exhibiting swelling, which, on pressure, discloses a pit, the general skin being like that on the limbs, shining, red, or heated. The pain in the limbs is excessive, and may increase on every change, the patient being with difficulty turned in bed, or receiving attention to his wants. Usually a profuse acid perspiration bursts out from the skin when the disease is at its height, and the neighbourhood of the suffering limbs is perceptibly affected. On close observation, it appears that the heart valves also partake of the suffering, and the more virulently the limbs are attacked the worse is it for the heart valves, which, either during the illness or subsequently suffer.

The pericardium, or heart-sac, is especially liable to inflammation. Increase of temperature, difficulty in breathing, palpitation, and pains in the region of the heart, are signs that the heart is affected by the disease. The accompaniment of acute rheumatic arthritis in children is frequently St. Vitus' Dance; in adults a nervous temperament and mental disturbances are often present. The continuance of the disease

fluctuates between days, weeks and months. The cure is protracted and gradual.

Treatment, as described in II., Article VI., for "Fever." Body ablutions of from 73° to 77° F., which may be taken three or four times daily, or, instead, two or three half-baths of from 86° to 90° F., lasting about ten minutes. Also three or four body baths of from 82° to 86° F., lasting from one-and-a-half to two-and-a-half hours, are recommended. Inflamed swollen limbs require to be enveloped in compresses of from 73° to 77° F., renewed every two or three hours. The application of damp bandages is, however, not to be neglected, as well as their renewal, and wash the parts with water at a temperature of from 68° to 72° F. Many cases are remedied by packs composed of cotton wool around the suffering limbs, in combination with hot water bottles applied to them. When the fever has abated, bed vapour and partial vapour baths, followed by whole or half baths. For costiveness, enemas (73° to 77° F.) are given.

In relation to special treatment, the two articles, "Care of the Sick," and "Sick-room Fare," are recommended to your notice in the First Part of this book. For removing any remaining stiffness in the limbs, Massage and Health Gymnastics are recommended. Compare the article "Joints, Inflammation of the."

The use of salicylates, the vaunted "Specific" of the "scientific" medical fraternity, should be most strongly condemned. It has been observed in many instances, quite apart from the usual complications, that salicylates cause valvular disease. In a state of convalescence, and for a long time after, the patient must continue the General Strengthening Treatment, to prevent a relapse, a state to which acute rheumatism is particularly liable.

Chronic rheumatism is developed either from the acute form, especially if many relapses have occurred, or it commences as in a chronic form. The chronic form is prevalent amongst the working classes, particularly those who have much to do with cold water, as washerwomen, charwomen, domestic servants, sewer cleaners, brewers, etc. The title of "Poor Man's Gout" (Arthritis Pauperum) has been bestowed on chronic limb rheumatism, which signifies a feverish, chronic inflammatory affection of the limbs, and commences with irritability, stiffness and sensation of pain, either in one limb alone, or in others at the same time. The

pain is, as a rule, a kind of burning one, and is increased by motion, pressure, and atmospheric changes, until the body becomes powerless, or partially so. During the course of the disease the swellings become watery (œdematous), and are often red; the limbs become heavy and powerless, bruised and knotty on the slightest movement, which creates intense pain. In a yet higher stage of the disease, pathological changes occur in the limbs, with degenerations in the cartilages, and, later on, in the bones; the nature of the complaint then changes to "deforming" chronic inflammation of the limbs, where it gradually displays itself, more particularly in the hand and finger joints, the latter being more or less cramped and displaced, by which the fingers lose all power of action.

Treatment of chronic limb rheumatism demands, in the first instance, a moist warmth, and the use of a 95° to 104° F. whole bath daily, once or twice, lasting fifteen to twenty-five minutes, with vapour baths (box or cane-chair) three or four times weekly, and the frequent local application of vapour has been found efficacious. Cold water applications are out of character with the general treatment, the directions given under "Joints, Inflammation of the," p. 1160, being more suitable. Massage occupies a prominent position (p. 702) in the treatment. Muscular rheumatism, whether acute or chronic, represents a primary inflammatory affection of one or more muscles, and is chiefly marked by pain in various localities, in the head, forehead, temples, occiput, throat and nape of the neck (the pain may extend to both sides), chest rheumatism, shoulder rheumatism (which interferes with every movement), rheumatism in the buttocks, known as sciatica, which appears so suddenly as to cause the patient to fall to the ground, and to be then unable to rise to the standing or sitting posture, as the slightest movement occasions intense pain.

Chronic rheumatism is distinguishable from acute by the changing position of the pain, not limiting itself to one muscle, but rapidly running from one to another in different parts of the body.

Alleviatives are chair vapour, or whole baths from 95° to 104° F., local applications being compresses with massage, tapping, rubbing, pressing and kneading.

Rickets; Softening of the Bones; Double Joints; Rachitis. — The so-called rickets, known as "double

growth," obviously arose in the times of hoary antiquity, since we still possess statues of those old days in which one can clearly recognize the symptoms of this disease. The first clear description of the disease, however, was given in the middle of the seventeenth century by a learned medical man named Glisson, and therefore this peculiar form of malady is called in Germany "the English disease." This disease affects children only, and consists in a softening of all the bones, whereby these become abnormally pliable and soft. The growth and nutrition of the bones is faulty, in consequence of the necessary deposits of lime salts (whereby they attain firmness) being wanting. The bones being soft and pliable, there must naturally arise deformities and bends in all the bones of the body, which malformations, later on, exercise their unwholesome influence upon the attitude and capacity for movement of the child. External unfavourable circumstances favour the outbreak of rickets. It is for this reason that we most often find the disease among people who live in small, dark, gloomy, and possibly damp dwellings, all huddled together, and among whom the unfortunate children are deprived of light and air, and among whom the feeding and care of children leave very much to be desired. But the children of people in better circumstances, who otherwise grow up under favourable conditions of life, are also often afflicted with rickets. In these cases they are the so-called hand-fed children, who, instead of mother's milk, or the milk of a wet nurse, are brought up with artificial food, especially with different forms of farinaceous foods; and who, therefore, suffer quite young from disturbance of the digestion; then again, above all things, a large proportion of rickety children become so through the infection produced by vaccination.

Rickets generally attacks children in their first years of life. In the first months of life there may be evidences of its commencement, while the more serious forms of the disease are usually discovered during the second and third years of life. This disease of the bones, which, as I repeat, is based upon a deficiency of the deposit of lime in the osseous (bony) substance, and which lends to the disease its specific character, generally proceeds from disturbance of the digestion, from catarrh of the stomach and intestine, and from other anomalous conditions of the intestinal system. It is therefore very often assumed that rickets is based upon a

deficiency of lime in the food, or a faulty assimilation of salts of lime by the intestinal canal. The children become emaciated, their skin becomes withered, pale and loose; gradual changes take place in single portions of the skeleton. One of the first appearances shows itself in the head of the child. The skull is noticeable by reason of its extraordinary size and softness. The so-called "open places" (fontanelles), which become bony under normal conditions in the first months of life, will not close. They remain soft and capable of being pressed in until the second or third year, so that the form of the child's skull is continuously subject to changes. The teething period sets in remarkably late and irregularly. The development of the teeth takes place in some cases so slowly, that even at a year-and-a-half or two years old only the first tooth has made its appearance. The teeth are then generally yellow and fragile, and easily fall out. The jaws have generally an unusual form; they are not curved but angular. As a consequence, the incisors, or cutting teeth, stand pretty much in a straight line; so also the thorax undergoes the most varied changes. Swellings are formed between the ribs and the costal cartilage, in the form of hard and tangible knots. The breast-bone is arched more prominently forward, whereby the so-called pigeon's breast arises, which then more or less unfavourably influences the breathing. The pelvis likewise suffers various malformations, which may have a fatal consequence in the case of the female, because of their appointed destination to bear children. Rickets may produce a narrowing of the pelvis, as well as many other manifold deformities in form, "dwarf pelvis," "protuberant pelvis," etc. Curvature of the spine, of the arms and of the legs, may result from this disease, by which flexures, or partial fractures of the hollow bones, and curves of the solid bones, arise. We have the opportunity daily of seeing in the streets the so-called "O" legs of rickety children in whom the shin-bones are bent inwards. Such children learn to walk very late, and their gait is peculiar, waddling and duck-like. Side by side with these symptoms one also often notices great protuberance of the abdomen, the so-called "pot belly."

Rickets nearly always takes a chronic course; generally only after years, after the fifth or sixth year of life, is the process of the disease finished. The children are then stronger and more powerful, and the development of the bones becomes normal. Many of the appearances left by

the disease they have overcome, remain behind with them in later life, such as curvature of the spinal column, of the breast, of the legs, narrowing of the pelvis in female children, etc.

In the treatment an important part must be played by prophylaxy, or prevention; this consists in giving good nourishment; during the suckling period mother's milk or sweet nurse's milk should be given; after the child is weaned, fresh, sweet milk, milk and egg puddings, young, juicy vegetables, wholemeal bread, and especially plenty of fruit. The so-called strengthening diet, such as raw, boiled, or roast meat, soup, wine, beer, cod-liver oil, etc., are only an evil. One should not torment the child too early with attempts at walking. Seek a dry and always well-aired, bright and cheerful dwelling, and do not let the child lie on feather beds or down pillows, but always, if the pecuniary circumstances of the parents allow it, on a Jaeger's woollen mattress. The child should be kept out much in the open air, in the light, and in the sun. That a rational care of the skin must go hand in hand with the above-described treatment need not be said. (See on this subject, Part I., Chap. 17, "How Shall we Harden our Children?") for the rest, the rules for the General Strengthening Treatment should be followed, and a daily hip bath at from 84° to 88° F. should be given. Now and then, at regular intervals, a three-quarter pack at from 77° to 82° F., or a reclining vapour bath No. 3, in combination with a subsequent trunk bath at from 82° to 86° F. In cases of curvature of the spinal column (see the article on this subject) or of the legs, one should strictly avoid the use of splints, instruments, and other clever means of martyrdom. Only through a complete conversion of the fluid contents of the body through an individualised Natural Curative Treatment can the child in its growing years be given the opportunities of proper development. One should, therefore, on taking up the treatment, consult an experienced Natural Treatment physician, but not expect immediate miracles from his prescription; above all things, be armed with patience and endurance, for the removal of a rickety condition that has taken firm root (whatever form it may have taken) means a long time, perhaps months, sometimes years.

Rikli's Treatment. (See Index.)

Ringworm. (See "Herpes. Tonsurans.")

Roman-Irish Baths. (See Index.)

Roundworm. (See "Worm, the Round.")

Rubber for the Back. (See Index.)

Rupture.—If an intestine, or any internal organ of the abdomen, has protruded from the peritoneal cavity, and forced itself through an opening in the peritoneum, whereby the external wall of skin has been raised and a swelling formed, whose covering exhibits the excontroverted hollow covering, the hernial sac and its contents — the intestine that has protruded from the peritoneal cavity — then this swelling is called a rupture. Such openings at which the intestines protrude arise at the navel, where, especially in the case of newly-born children, the navel-cord, together with the blood vessel of the navel, protrudes; at the femoral, or crural canal, where the large blood vessel courses down the thigh from the abdomen; and most especially in the inguinal canal, where the spermatic cord follows a course taking it towards the scrotum.

A distinction is specially made between ruptures of the navel, femoral, or thigh rupture, and inguinal hernia; although very frequent mention is also made of omental, enterocele, and entro-epiplocele, and ruptures of the diaphragm, of the perinæum, and of the intestine, of the scrotum, of the vagina, of the labia pudendi, etc. Meanwhile the limits of my task would be exceeded if I were to attempt to describe all the different kinds of rupture or hernia that occur. That portion of the wall of the rupture through which the viscera have protruded is called the hernial orifice; if the intestines are drawn through a canal, one then speaks of the canal of the rupture. That part of the swelling which is enclosed by the hernial orifice or by the hernial canal is called the neck of the rupture, or the hernial neck. The part of the swelling lying outside the hernial neck is called the body of the rupture. The rupture, which returns of itself to its normal position, or can be pressed back by a soft pressure of the fingers directed towards the hernial orifice, when the patient is in a recumbent position or on a raised seat, is called a movable, or reducible rupture. If, on the contrary, the body of the rupture has become thickened, and therefore too voluminous to pass back through the orifice, or has already entirely grown together with this, then the rupture is called an immovable rupture. When the rupture is confined, or, as it were, tied together by the hernial orifice, so that the passage of fæces (excrement) through it is hindered, and the circulation of the blood thitherward is entirely cut off,

and finally, the rupture, in consequence of want of nutrition, is in danger of dying, that is to say, of becoming gangrenous, then one has to deal with what is known as strangulated hernia.

A movable or reducible rupture may arise in consequence of any bodily movement; from excessive over-exertion, from violent coughing, sneezing, blowing of the nose, laughing, crying, through the lifting of heavy bodies, through straining and pressing in the evacuation of the bowels, through labour pains, through jumping, through a fall, etc.; but these are all of them only the immediately provocative factors in producing the disease; it has really arisen in consequence of faulty anatomical structure, or the relaxation of the inner wall of the peritoneum where the intestines have protuded. With certain persons there appears to be a predisposition to the formation of ruptures, and it only requires the incidental or accidental causes, such as those mentioned above, when, by the pressure exercised upon the abdomen, the intestines are pressed out and the rupture has taken place. When a sudden rupture takes place, the process is accompanied by a sudden pain and an audible cracking sound, so that the sufferer involuntarily grasps with his hands at the site of the rupture. If the rupture, on the other hand, comes about gradually and slowly, then the person feels an unaccustomed pressure, and a pricking and stabbing and gnawing feeling in the seat of the rupture, this feeling becoming stronger with laughing, sneezing, coughing, etc. A rupture is easily distinguished from other swellings by the fact that, with every test which one makes intentionally for the sake of experiment, it becomes larger, and that when one takes a recumbent position, it either vanishes of itself or is very easily pushed back into its place by a pressure of the finger.

Movable rupture does not cause any considerable inconvenience, with the exception of slight disturbances of the digestion, perhaps evoked by some mistake in the dietary, or through some other careless conduct. Free or movable rupture only becomes dangerous when it becomes strangulated. The strangulation so very easily takes place, in consequence of a violent jump or fall, together with the first protrusion of the rupture, in consequence of the sinking of a part of the intestine into the hernial sac, just as in the case of a rupture of longer standing, the part of the intestine is the immediate cause of the strangulation because it cannot return. Through

the accumulation of large masses of fæces in the protruded portion of the intestine the rupture becomes unable to repass the hernial orifice, and, as a consequence, there comes about an inflammation of the whole body of the rupture. The rupture causes severe pain, is very tense, and is extremely sensitive to touch. The patient suffers from colic, constipation of the bowels, belching, sickness, and choking sensation. Then follows the vomiting of evil-smelling masses, and finally pure excrement is thrown up. Violent inflammation of the contents of the rupture, and of the internal organs connected with it, then sets in, as well as of the peritoneum. The abdomen is very painful and swollen. The swelling of the rupture becomes dark blue and blackish, and then gangrenous; then either death takes place, or nature helps herself by the formation of a fæcal fistula, or kind of unnatural anus, through the falling off of the gangrenous and mortified hernial swelling, and in place of the strangulation an opening is formed. To this the end of the upper part of the intestinal tube becomes attached by growth, so that the fæces can be evacuated through the opening that is formed.

As I have already stated at the beginning of this article, three kinds of rupture are chiefly met with—umbilical hernia or navel rupture, thigh rupture, and inguinal rupture. Navel rupture appears in consequence of the scar left by the falling off of the stump of the child's umbilical cord (that is to say, the remnant left after the cutting of the cord which joins the unborn child by its navel to the mother). (See "Navel Separation.") The so-called ring of the navel not being strong enough to withstand the pressure of the viscera or bowels that lie behind, the navel ring is thereby pressed out, and there arises a rupture which is continually increased in consequence of the crying of the baby, unless it is secured by proper appliances, which I am just about to describe.

Ruptures of the navel which are neglected, or which arise at a later age from any cause whatever, then attain a considerable size, and easily become immovable (see p. 1312), since it is equally difficult to find a suitable truss for the effectual closure of the hernial orifice of the navel rupture as it is to secure its replacement when in the recumbent attitude.*

* Rupture of the navel is not to be confounded with the so-called peritoneal rupture, or rupture of the white line, which is somewhat above the navel.

Rupture of the navel in infants should be checked by laying upon the navel ring a damp small piece of lint, and on this a piece of money wrapped up in soft linen, and on this coin a small piece of cork, and then fasten all these objects in place by a star-like arrangement of strips of sticking-plaster fastened to the skin of the abdomen. (See Fig. 396.) The strips of sticking plaster must of course be of considerable length, so that they extend over the lint, coin, and the cork. If one succeeds, by the help of the lint plug, in keeping the orifice of the rupture closed for a considerable time, and so preventing the protrusion of the rupture, a cure is assured.*

Femoral hernia is never congenital, but is always acquired, and is much more frequent with women than with men. It proceeds from the femoral canal and out through the femoral ring, and consists in an egg-shaped swelling in the middle of the groin. In consequence of the small

extent of the hernial orifice, and the hardness of the tissue of which it is formed, there is frequent danger of strangulation, more frequent, in fact, than in other kinds of hernia.

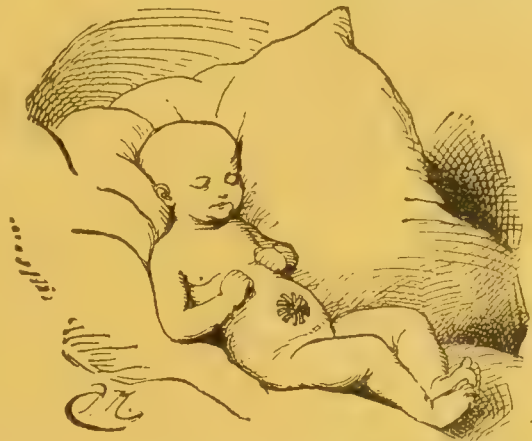


Fig. 396. An Umbilical Rupture in a New-born Child, held back by strips of sticking-plaster.

* On the other hand, for the reposition of the ruptured navel in infancy, the following procedure has been recommended: Take a piece of white, that is to say, non-irritating sticking-plaster, cut from it strips from three-quarters to one inch broad and from five to six inches long. These are then stuck upon the rupture without the rupture being covered with the objects enumerated above. The strips of plaster are made fast in such a way that they are fixed in the middle on the one side of the abdomen between the navel and the hip, then drawn over the other side of the abdomen towards the other hip, and stuck together with the other half. One must, however, beforehand press the skin of the abdomen against the navel with the left hand, in order that this may be closed on to the body of the rupture, and the orifice of the rupture be pressed together.

Inguinal rupture is either congenital or acquired, there being a congenital predisposition to it, and it arises much more frequently among men. The rupture consists in a portion of the intestine that has protruded out of the inguinal ring and through the inguinal canal, and, when it is congenital, has descended shortly before birth out of the peritoneum into the scrotum; or it sinks down, during the first months of the life of the boy, through the not yet fully closed inguinal canal following the course of the spermatic cord. Inguinal rupture may be caused in any of the ways described on p. 1313. The portion of the intestine pushing the peritoneum before it sinks down into the inguinal canal, so that the spermatic cord lies either backwards and inwards from the portion of the intestine (that is called external inguinal rupture), or backward and outward from the portion of the intestine (that is called internal inguinal rupture). In the case of women there is, in the inguinal canal, in the place of the spermatic cord, a roundish ligament, which serves to fix the uterus. The inguinal canal is, in the female sex, both longer and narrower than in the male, and therefore inguinal ruptures are less frequent among women than among men. If the rupture protrudes entirely out of the inguinal ring, then it is called complete inguinal rupture; if it slides down into the scrotum, then one has to deal with a case of scrotal hernia. The last may attain an enormous size, and thereby become immovable.

In the case of women, an inguinal rupture may descend as far as the labia majora.

Everyone who suffers from rupture must, above all things, take very great care to keep back the rupture by the use of a proper and well-fitting truss. (See under the heading "Truss.") Only by these means can the sufferer, in the case of fresh, movable ruptures, be saved from the danger of their protrusion and strangulation. The form of the truss is well known. Its most important requirements for successful use are the following: A properly pressing, well-arranged spring, made of good steel, and a pad in shape, size, position and direction exactly fitting the individual case of rupture. The correct use of the truss can be easily learned. When the patient goes to bed he must not take off the truss until he is lying on his back in the bed. In the same way he must not get out of bed in the morning until he has, lying in the same position, put the truss on again. The truss must be put on while lying on his back, with the thighs drawn

up. By means of gentle pressure, but without exerting any force, he pushes the body of the rupture back into the hernial canal, then presses the finger on the hernial orifice, pushes the pad on to this beneath the finger, and presses the pad with the hand until he feels that the spring is exercising its pressure in the right place, then he fastens the girdle and the thigh straps. He must get out of bed very carefully, and must convince himself, by a gentle coughing, or by stooping, whether the rupture is exactly under the pad or whether it presses out at the side of it. If the truss gets out of place in the course of the day, or if the patient feels pains, or tension, or pressure in the locality of the rupture, then he must at once examine and see if the truss is in position, and proceed again, in the way described above, to put it on in place. In this way one can, at least in the case of a small hernial orifice, and where the rupture is not of too long standing, and when the patient is not of too great an age, perhaps even secure the growing together of the hernial orifice. Certainly, if one wishes to attain this object, one must wear the truss by night as well as by day. This must also be done if one is subject to much coughing in the night. Should coughing or sneezing take place in the night, when the truss is not on, or in the day when the truss is off for any reason, then the patient must at once protect the position of the rupture by pressing his hand upon it. Speaking generally, anyone who suffers from rupture must avoid all violent bodily exertion, all bending of the body backwards, all long standing, and even deep or forced breathing, long pedestrian exertion, fatigue or jolting, riding and driving, or carelessly carried out gymnastic exercises. Also he must take care to avoid straining of the bowels, violent coughing, violent clearing of the throat, sneezing, etc.; he must be very exact in obeying all the rules of a course of life in accordance with nature, in relation to easily digested dietary, and must especially take care to keep the bowels open, and the moment the least constipation occurs have recourse to laxative enemata. In young persons, the growing together, and thus the cure of rupture, may be favoured by the application of the General Strengthening or Tonic Treatment, in which an important factor of the cure consists in trunk baths, taken three times a day, at a temperature of from 82° to 86° F., and of a duration from ten to fifteen minutes each time; or, twice a day, a friction sitz bath of from 55° to 59° F., of a duration of

from ten to twenty minutes. Also two or three sitz vapour baths, or night stool vapour baths, taken equal in number through the whole of the week, in combination with subsequent washings of the whole body, may favourably influence the process of cure. At night the patient suffering from rupture should be given stimulating sacral packs, that is to say, packs on the lower part of the back at from 68⁰ to 77⁰ F. The hernial orifice is in these packs to be covered with six to eight-folds thick stimulating "extra.compresses," at from 73⁰ to 77⁰ F. One may experimentally, and very cautiously, try the Cycle of Movements No. 7 of the Simple Active Movements of the Health Gymnastics.

Ruptures of newly-born children offer the most favourable chances of cure. Femoral ruptures hardly ever happen to babies, and inguinal ruptures generally heal of themselves. It is therefore also inadvisable to put trusses on children in the first years of life. For inguinal rupture in the later years of life, one should have recourse to a very well-fitting truss, for there is always the hope present, in the case of very young persons—even after the period of youth is passed—that the hernial orifice will gradually draw together, in fact, entirely close up, so that a perfect cure of the rupture may result.*

Matters are quite different in regard to the immovable or irreducible rupture. (See p. 1312.) Here a truss cannot be worn, the sufferer from such a rupture must wear a suspender for the scrotum, and must, under all circumstances, most carefully avoid any violent physical exertion whatsoever; he must only eat easily digested food, and carefully avoid any kind of food likely to cause flatulency. He must also take great care to keep the bowels well open, and may, more or less experimentally, try the rules of cure given under the heading of the Tonic and General Strengthening Treatment,

* The Natural Treatment physician, Theodor Hahn, recommends, for the radical cure of abdominal ruptures, four to six weeks' perfect rest in bed, extremely spare and non-exciting diet, especially plenty of Graham's bread and fruit, in order to keep the motions of the bowels as fluid as possible; the avoidance of all violent exertion, daily washing of the whole of the body, daily four to five washings of the abdomen, daily massage in the form of friction, pressings and kneadings of the abdomen in combination with circular friction around the place of the rupture, and four times a day the application of a stimulating abdominal fomentation, with stimulating thick extra compresses on the site of the rupture. Hahn asserts, "the truss is then a superfluity."

to see if it be possible to convert the immovable rupture into a movable one. If, however, any of the symptoms described as pertaining to strangulated hernia set in, one must, in the first place, try the recumbent position, with the upper part of the body raised and bent somewhat forward, and the knees and thighs drawn up in order to bring back the rupture. In the case of femoral rupture, the thighs must be turned outwards, and in the case of inguinal rupture, they must be turned inwards. When in this position the rupture is laid hold of with the hollow of the hand, an attempt must be made at first to press back the neck of the rupture, and finally the whole body of the rupture, into the hernial orifice. Men must, during this manipulation, firmly hold the testicles with the other hand. We may attempt to reduce the rupture in this way, even in a sitz bath of from 77° to 81° F., in which case one leans with the back firmly pressed against the bath. At the same time never exert force for the replacing of a rupture. If these means do not succeed in replacing the rupture, then place upon the body of the rupture an eight to twelve-fold compress at from 72° to 81° F., well wrung out. This compress must also cover the parts immediately around the rupture, and over this must be laid the stimulating abdominal fomentation at 72° F. Compresses and the abdominal fomentation must be changed immediately they begin to get hot. If, on the other hand, the strangulated hernia is hot and inflamed, apply soothing and antiphlogistic fomentations at from 77° to 80° F. These must cover the body of the rupture and the parts immediately round it. When the inflammation has been removed, a fresh attempt may be made to replace the rupture, in the position of the body described above. If this succeeds, then further cooling fomentations, at from 68° to 72° F., should be applied, and these should be changed after a time for stimulating fomentations at the same temperature. In all cases one should give, continually, every half-hour or every hour, laxative enemas at from 77° to 81° F., in combination with subsequent small cold enemas (to be retained) at from 64° to 68° F. For the removal of any signs of fever that may be present, one should adopt the Fever Treatment prescribed in Part 2, Section 6. If, however, after three or four hours, one sees that there is no satisfactory result, the patient should be given a trunk bath at from 84° to 88° F., and one should make an attempt, while he is in this bath,

to remove the entanglement or strangulation of the intestinal tube, by means of soft shaking and fluctuating movements extended over the whole of the abdomen, as well as by mild moderate stroking of the parts surrounding the rupture directed towards the hernial orifice. One may also, while in the trunk bath, apply a compress to the body of the rupture, and attempt to bring it back through the hernial orifice by means of moderate pressure exercised through the compress from the circumference of the rupture. If, after from two to four hours, and if after the following of the rules of treatment given above, there is still no result, then the patient should be given a reclining vapour bath No. 1 or No. 2, or a Kuhne's cane-chair vapour bath, with a trunk bath to follow, in which one either massages the rupture in quite a mild and soft manner, beginning with "Hand Grip" No. 1, but being very careful of the parts immediately surrounding the rupture, and of the rupture itself, or one may exercise a very moderate pressing movement through a compress on the body of the rupture alone. Laxative enemas, followed by small cold stimulating thick compresses on the rupture and its surrounding parts, and stimulating abdominal fomentations, should be made use of continually during the time the patient lies in bed. If an evacuation of the bowels follows, then the patient is saved. He should then, for a long time to come, be kept on a light diet (oatmeal, groats, wholemeal, or bran soups, stewed fruit, fruit, lemonade made from fresh lemons, raspberries, etc.), as well as the application of reclining vapour baths Nos. 2, 3, or 4, complete washings of the whole body, etc. In many cases the application of damp warmth is indicated for the replacing of strangulated hernia. When this is so, one applies vapour compresses, at from 94° to 104° F., to the abdomen, as this procedure acts soothingly and very relaxingly upon the nerves and tissues and the intestinal canal. The application of this treatment is especially advisable in cases where the strangulated intestinal loop is full of gases, and tense. In such a case, however, one can with advantage produce an effect in any way, that is to say, by inserting repeatedly into the rectum the nozzle of a compressed enema syringe of the kind made with a balloon-shaped indiarubber ball. This procedure, with the ball pressed together, draws away the gases. Also a steaming of the abdomen with the aid of Malten's Vapour Douche (Fig. 133), in combination with subsequent cool application of the rose

douche, at from 73⁰ to 77⁰ F., to the whole abdomen. This has in many cases proved itself very effective in the removal of the strangulation of a hernia. The chief thing, however, to consider in the treatment of strangulated hernia, as well as in the treatment of all other diseases, is individualisation of the cases — a special treatment suitable for each particular case—one thing is not suitable for all. One must treat the patient and not the disease.

Rupture, Scrotal. (See "Rupture, Inguinal.")

S.

St. Vitus' Dance (Chorea). — St. Vitus Dance is an illness that is caused by an irritation of the motor nerves, and of which the principal features are restlessness of the muscles and a disturbance of the co-ordinate movements. St. Vitus' Dance is a very common nerve-affection in young people between the age of five and fifteen years, the sufferers being principally girls. The name of St. Vitus' Dance was given to the illness in the year 1374, when so many people were affected with it at the same time, that it seemed a perfect epidemic. The people then invoked St. Vitus, who was the patron saint of the Convent of Corvey, to help them to overcome the complaint. The name St. Vitus Dance has thus been applied to this illness to the present day, and in truth the patient almost seems to dance, as there is so much wriggling and moving of the body. The real causes of the complaint have not yet been satisfactorily cleared up, but at the same time it can be traced to certain circumstances that favour the outbreak of the disease. The following may be mentioned: Hereditary nervous troubles (especially in cases where the parents had either epilepsy, neurasthenia, hysteria, etc.), infectious illnesses (such as measles, scarlet fever, smallpox, diphtheria, cholera, typhus, etc.) which have been overcome, and acute rheumatism in the joints. It also occasionally attacks women who are with child, in which case it often occasions an abortion. There are also other complaints which may influence an attack, such as habitual constipation, worms, difficult teething, etc. It has also very often been found that an attack of St. Vitus' Dance was caused through a physical emotion, such as fright, fear, etc. Licentiousness has also often been the cause of the complaint. Doctors have discovered, during the last few years, that the St. Vitus' Dance

is found in connection with a disease of the throat and of the nose, and patients have been cured of St. Vitus' Dance after they had first been cured of the cause of the trouble. In conclusion, there is one thing more which may be mentioned, which is sometimes the cause of St. Vitus' Dance in children. Children often try to imitate others while they are playing, and will thus make the oddest movements and grimaces, and if those having charge of the children do not put a stop to it, cases occur in which a healthy child is seized by a restlessness closely resembling St. Vitus' Dance.

Now let us turn to some of the features of the complaint. An attack of St. Vitus' Dance has generally forerunners, in the shape of loss of appetite, constipation, unsound sleep, shifting pains in the limbs; giddiness, an irritable temper and sulkiness; besides, the person is generally whimsical, and takes no pleasure in anything. With children one soon observes peculiar movements, which they are not able to prevent, even when they are threatened with punishment; they will do everything in an awkward manner, spill liquids, let anything they may be holding in their hands easily drop, and will no longer be able to sit still or stand still. As the illness progresses, the children move their hands, arms and fingers, wave the arms about, bend and stretch the fingers; they will also wrinkle the forehead, make grimaces, make noises with their nose and tongue, roll the pupils of the eyes, and close and reopen the eyelids in rapid succession, so that the little patients sometimes present a comical appearance. The legs are not generally much affected by the general restlessness of the muscles, but still a slight movement may even be noticed in these, as the knees are sometimes stretched and then bent, and the feet raised and put down again. Walking can generally only be done with zigzag movements. In particularly severe cases, the children can neither walk, stand, nor sit, the muscles being in continual movement, without any signs of fatigue being noticed. Work such as sewing, writing, piano-playing, etc., can mostly not be executed, and in the severe cases the unfortunate children are not able to eat or drink unassisted, and must be helped like babies. The continual unrest of the muscles attacks both sides of the body equally, as a rule, still, there are sometimes cases where one side of the body is in movement while the other is perfectly at rest. Any mental emotion generally aggravates the motion of the muscles, but during

sleep the movement stops altogether. The duration of the trouble may be weeks, months, or years. Whilst the light cases may only take a few weeks to cure, a cure is seldom effected in the more serious cases before many months, or even more than a year have elapsed. This complaint is inclined to have a relapse, but, as a rule, the relapse is not so severe and lasting. In nearly every case (though of long standing) there is a perfect cure in the end.

The treatment should be calculated to remove the cause of the complaint if it can be discovered. Besides this, one should employ the General Strengthening Treatment, giving the patient daily a full bath (see p. 516), lasting from fifteen to twenty minutes; after the bath the patient should be wiped very gently. In some cases a bed vapour bath (No. 3) is recommended instead of the full bath mentioned; and the bed vapour bath should be followed by a hip bath of from 86° to 90° F. Other means that may be used, in addition to the above, consist of a massage of the whole body once a day, and Movements No. 2 prescribed in the Curative Gymnastic Exercises. The Curative Gymnastic Exercises must always be superintended by a grown-up person. In summer, when the weather is favourable, it is also efficacious for the patient to bask in the sun and enjoy the fresh air, in addition to the above means, to effect a cure. The diet should be cooling, mild, and strictly vegetarian. Above all, care should be taken that there is a daily action of the bowels, that the feet are warm, and there is not too much mental or bodily exertion. In many cases a prolonged rest in bed is recommended.

Salivation is a disorder in which the saliva is not only swallowed with masticated food, but accumulates in large quantities in the mouth, apart from meal times. It flows out, or is swallowed or ejected. As a rule, salivation is the co-symptom of some other affection of the health, of mercury-poisoning, catarrh of the stomach and bowels, of abscess in the stomach or cancer, of worms, sexual pains, etc. Improper connection during pregnancy may bring it on. Further, it is a symptom of a certain disorder of the brain and spinal cord, of feverish infectious diseases; it often occurs in nervous cases, hypochondriasis and hysteria, and may be brought on by any irritation experienced by the nerves of the salivary glands, either directly, by sharp, pungent spices, or indirectly, by disorders of distant organs.

The treatment is applied to the root of the matter. In dubious cases, the rules of the General Curative Treatment should be followed, in which bed vapour baths No. 2 or 3, daily soothing massage of the neck, weekly, three or four times, massage of the entire body, play an important part. Locally, follow the instructions laid down under "Mouth, Catarrh of the."

Salivation may be cured by the application of stimulant packs to the neck, 73° to 77° F.; body, 73° F.; and to the calves of the legs, 77° F., during the night, as well as soothing friction of the neck and throat; foot vapour baths may also be used.

Hypochondriacs and hysterical persons should take tepid baths; "scientifically mercurialised baths" must be discontinued at once, also the use of "specific" mercury.

Salt Rheum; Salt Flux. (See "Eczema.")

Salt, Table. (See "Spices.")

Sand Bath. (See Index.)

Sanitary Wool System, according to Prof. Gustav Jäger.—It is very seldom that a new doctrine has met with so much intentional and unintentional misunderstanding, so much prejudice, such a flood of contempt and mockery, and so much self-interested opposition, as that which was intended to destroy, more or less, the reputation of the wool system of Dr. Gustav Jäger, of Stuttgart. But truth is mighty and will prevail, and now that the superstitious or ignorant arguments of his opponents have been overcome, mankind is wise enough to appreciate the new hygienic system. Frequently the very opposition a new doctrine has met with afterwards led to its being proved and valued, while very often a false doctrine, which was at first received with enthusiasm, has fallen into oblivion a short time afterwards. A striking example of the above is offered when we consider the era of Koch and his tubercles, and that of the curative serum. These discoveries were received all over the civilized world with great rejoicing, and now? But let us return to our subject: Concerning the natural scientific grounds of the new wool system, I will remind you that the health or sickness of an individual depends to a great extent on the secretions and excretions of the body. The human body produces two kinds of gases, one of them having an unpleasant odour, whilst the other has a pleasant smell, somewhat like musk. The unpleasant gas is let out with the urine and excrement, also through the

evaporation of the lungs and the perspiration of the skin. The suppression of the self-poisoning matters produces a contraction of the vessels of the skin; this lessens perspiration, and prevents the warmth of the body from passing through the skin, which gradually becomes relaxed and swells. (Comp. the article on "Hardening and Enervation.") The gases, having a pleasant smell deserve to be called vital substances, as they produce a curative effect on the body that secretes them. They originate from the follicles which are spread over the whole surface of the body. Little attention was paid to these follicles before Dr. Jäger's discovery. The fact that these gases are curative is proved by the salve "Lanoline," which is kept by every chemist as an antiseptic for wounds, and also as a safeguard against infection, this healing salve being extracted from sheep's wool. The curative, musk-like gas renders the body damp proof, therefore not liable to be affected by changes in the weather; prevents overheating, and has been found to improve the mental as well as the bodily strength. It has in many cases shown its wonderful effects on old people when they profited by the vapour exhaled by young people. Now, both gases (the poisonous as well as the curative), which are created in the body are not only dispersed in the surrounding air, but the surrounding substances are also impregnated with the gas. (This may be conceived when one considers that a dog finds his master with the aid of the sense of smell.) Dr. Jäger discovered that different kinds of cloth and furniture were not liable to be poisoned with those gases—these include glass, polished wood, metals, etc., and can easily be kept clean; whilst others, as linen, cotton, hemp, jute, rough wood, paper, silk, or dyed leather, generally absorb the poisonous gas, so that our bodies are gradually poisoned by the bad smell when it comes in contact with those things. Therefore cloth made of linen, cotton, etc., cannot be healthy, unless it is new or has just been washed, and when they are worn in a damp state they act as poisons to the body. Animal wool, hair, feathers, undyed leather, parchment and cellular paper, have a tendency to absorb the musk-like pleasant smell. Cloth made of wool may at first irritate the skin, but it becomes softer as soon as it has absorbed the curative gas, and many people are persuaded that woollen clothes, when worn, are to a certain degree a safeguard against infection, for, whilst they are so beneficial to the body, they keep off the poisonous miasma

from penetrating into the skin. Woollen clothes allow the perspiration from the skin to pass off. This is proved by the fact that even a wet garment will dry on the skin without the body being affected by it. As garments when dyed often become dangerous, and have an unpleasant smell, Dr. Jäger recommends a natural colour for woollen clothes, as being by far the healthiest. Next to this he recommends woollen clothes dyed a light and harmless colour; and, after this, he recommends dark but fast-dyed clothes. Dr. Jäger laid down

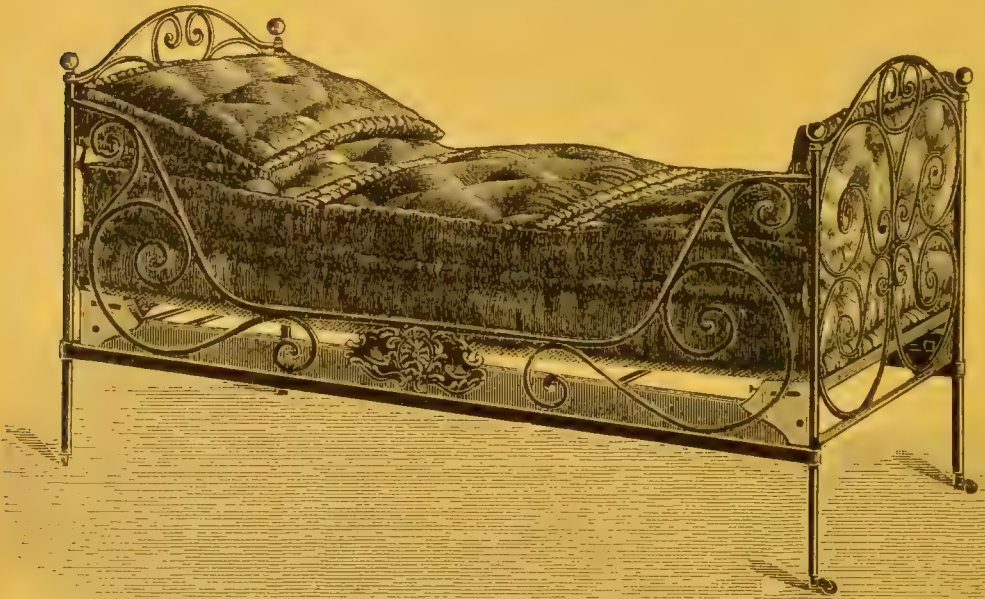


Fig. 397. The Normal or Wool Bed (Dr. Jäger's System).

definite rules in his wool system concerning garments, these being as follows: The outer and under-garments should be made of pure and new wool, of a natural colour, or, if dyed, they should be of a fast dye. In order not to obstruct the perspiration, the cloth should not be thick, but of a porous texture. The perspiration cannot pass freely when the garment is too thick. The body should wear but one over and one under-garment; the waistcoat between the shirt and the coat is considered superfluous. The linings of coats, especially round the chest, should be discarded. An overcoat is not to be worn. Garments should be closely fitting and elastic

(in order to prevent the outer air from disturbing the perspiration of the body), and be tightest at the neck and wrist (the trousers fitting tightly at the legs and loins). The middle of the body must have a somewhat thicker covering than the other part, this covering being about five to seven inches wide, and should have no opening in the middle, as it should begin at the epigastric region and end at the navel. The cloth should also be somewhat thicker at the wrists and legs. This can easily be managed when cloth is cut into a garment.

Bedsteads should be either of iron (Fig. 397) or of wood; in the latter case polished or painted inside and outside. In order that the blood may circulate freely, the legs and thighs of the sleeping person must have a thicker covering than the other parts of the body, to effect which, woollen bed socks, or else an eiderdown quilt or woollen blanket, should be procured. Furthermore, sleep in a wool bed and have the window open. People who do not follow this rule will suffer the consequences, as they breathe the poisonous air which the wool bed refuses to absorb. The wool régime, when properly employed, will be found a strengthening, healing agent, and will prevent the poisonous air which was exhaled from re-entering.

When we wear unsanitary clothes, and sleep in a bed which is not according to sanitary rules, continual exposure to illness will follow; and if disease attacks us, and we remain in the same bed and clothes, the infection will remain in the latter for years. The wool system alone can remedy this evil. When a patient is under the wool régime, he should not listen to contrary advice, but keep up hope, and he will find that his health returns step by step, which is often the case even in chronic diseases. (Concerning this, comp. I., Chap. 21, p. 201.) It would be too extensive if I mentioned here all the illnesses in which patients were greatly benefited by the wool system, and how they progressed during the period. Space does not allow of my giving a nearer explanation of the working and cleaning of clothes during the crisis, and other explanations. I therefore advise the reader to procure the small work of Dr. Gustav Jäger, called "My System," in which the hygienic wool system is more extensively explained. This work can be procured from any of Dr. Jäger's dépôts.*

* Dr. Jäger states that pure woollen garments are recommended, in order that the sufferers should regain their normal condition of

Satyriasis is a disease of the male sexual organs, in some cases combined with mental perversion. In consequence of continued irritation of the sexual nerves, the desire becomes abnormal, and this leads to a too frequent indulgence. Frequently the act becomes impossible, because of the painful stiffness of the member, or premature ejaculation before the member can be introduced.

The treatment must be directed to removing the cause; further, in the application of the General Strengthening Treatment. If the disease is caused by a purely mental derangement, a brain specialist must be consulted.

Scaldhead, Favus (Tinea Favosa).—This disease is very similar in many respects to beard acne. It is an infectious disease produced by the action of a fungus, chiefly found among the children of both sexes and youths. Favus always attacks the head and portions of the scalp. At the beginning of the trouble, a number of tiny, separate, yellowish pustules appear, their eruption being accompanied by itching. A hair is usually found in the centre of each pustule. These insignificant little pustules, which at first are barely as large as millet seeds, gradually attain the size of lentils, and, in the end, close up together, forming several large scabby surfaces, whose composition is, however, easily seen to consist of a number of small round pustules pressed flat. When the disease has lasted for some time, the whole hairy portion of the head is covered with the yellowish-grey deposit, and its appearance then is somewhat like that of a honeycomb. When the scab is removed, there is a musty odour. The hair is also sympathetically affected, it loses its brilliancy, becomes dry, stiff and colourless, splits at the ends, and easily falls out. When the roots of the hair are destroyed, bald spots are formed of greater or less extent. A very frequent after-result of this disease is eczema. (See "Eczema.")

health. They are called, in consequence of the sanitary effect they produce, "Normal Clothing," being manufactured for men, women, children and babies (in binders). Among the things that are manufactured are collars (white or natural), cuffs, handkerchiefs, hats, stockings, shoes, umbrellas, ties, gloves, etc. Also household articles, as curtains, bedclothes, travelling rugs, towels, serviettes; pocket books and cigarette cases (these are made of polished wood and cased with fine flannel). The Author does not hesitate for a moment to confide to the reader the secret that this very book was written with the aid of a normal penholder (penholder made of wool).

Plate XII.

Fig. 1. Measles. Consult text on page 1223.

The illustration may also be taken for that of roseola (red-rash), which has much the same appearance as measles (see page 1223). It is not always an easy matter to diagnose between these two diseases; particular notice should therefore be taken of the fact that the appearances of roseola are not nearly so severe or of so long duration as those of measles. The spots of roseola, although often as large as those of measles, are mostly round and without a sharply-defined edge, whereas the spots of measles are of irregular shape and ill-defined edges.

Fig. 2. Scarlet fever. Consult text on page 1329.

Fig. 3. Smallpox. See text on page 1347.

The illustration of the spots has purposely been made proportionately too large, to show more plainly the characteristic small bladder or vesicle, filled with a clear lymph, and surrounded by an eruptive ring.

Fig. 4. Scald head. Consult text on page 1328.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

The local treatment consists in the frequent application of vapour to the head, of head baths at 86° F., of long duration, and of a head pack at from 73° to 77° F., to be kept on all night (see p. 502), and frequently, during the day, sponging of the scalp with lemon water (water in which a small quantity of freshly-squeezed lemon juice is mixed) at 77° F., a piece of lint or cotton wool being used for the purpose. When, after a few days of this treatment, the scabs soften and are removed, the reddened skin appears. Out of this one must then pull with a pair of pincers the numerous diseased hairs, which are very loosely implanted, to prevent a new deposit of the scab, which will otherwise certainly take place by reason of the germs of the fungus that remain in the hair follicles. At the same time the rules of the General Strengthening Treatment are to be strictly carried out.

Scalds. (See "Burns.")

Scaly Eruption. (See "Ichthyosis.")

Scaly Ringworm. (See "Psoriasis.")

Scarlatina, Scarlet Fever.—Scarlet fever shares with diphtheria the sad reputation of being the most dangerous feverish infectious disease to which children are liable. The poison conveying scarlet fever is unknown, although it is undoubted that a bacillus is the means. This only explains its rapid communication from one to the other, which occurs when the healthy person is only a few minutes in the sick room. The linen, the outer garments, the furniture and carpets, take in these unknown micro-organisms. Infection is carried by all these, even after some time has elapsed since the illness.

Sometimes scarlet fever is epidemic, at others sporadic (affecting few). One attack of scarlet fever does not, according to medical opinion, protect a person from a second. The age of the child attacked is often from two to ten years, although adults are not safe from it. The incubation lasts about a week. At the end of that time, sickly feelings are experienced, weariness, weakness, drowsiness, drawing pains in the limbs, and listlessness. The premonitory stage lasts two or three days, and sets in with shivering, feverishness in varied degrees, nausea, retching, vomiting and headache. If the fever runs high, cramp and delirium may appear. Symptoms peculiar to this stage are sore throat and difficulty in swallowing, caused by swollen tonsils. These are covered with greyish-white mucus. This "rash" stage lasts from four

to seven days. At first the previous symptoms are increased, and then the rash breaks out on the neck and chest. It then spreads over the rest of the body and limbs, and attacks the face last of all. It consists of numerous, close, little spots, of the size of a pin's head, and slightly raised, which unite and cause the reddening of the skin peculiar to scarlet fever. The neck, the body, and the limbs, are all of a deep dark red. If the finger or anything blunt is pushed over the skin, a white mark is made on it. You can write on the skin, and the characters will remain there for some time. The tongue, which at the beginning of this stage is coated with yellowish-brown or grey mucus (turning red along the tip and the edges), from which the red papillæ project, becomes cleaned on the second or third day of the rash stage—the eruptive stage—and becomes of a deep red. The swollen papillæ rise above the surface of the tongue, and give it a rough appearance, which is sometimes called a “raspberry” tongue. The fever keeps pace with the eruption. It reaches its greatest height in the blood stage, 104° to 105.5° F., and ceases only when the rash diminishes in the course of five to six days. In the “peeling” stage, little ridges are found on all parts of the body where the rash has been, and from these the skin falls off in scales. Children are very apt, in the convalescent stage, to pull off the skin with their fingers. Especially in places where it is rather thick it comes off like a glove. Frequently the particles of skin will get into the passage of the ear; they should be removed by syringing. Very often scarlet fever is complicated with other diseases or after-effects, such as diphtheria, which may, in its turn, cause inflammation of the internal ear and of the pericranium, catarrhal and croupy pulmonary inflammation, bronchitis, inflammation of the pericardium, of the kidneys, joints, and bowels. Loss of hearing in one or both ears often results from inflammation of the internal ear, or diphtheric action. Weakness of the sight of all kinds, epilepsy, St. Vitus' dance and other nervous disorders, follow in the train of scarlet fever.

The treatment is the same as for measles, and is discussed under the directions given in Part II., Sec. VI., for “Fever.” In complicated disease, and after-disease, apply the treatment given under the various headings to which it belongs. The “Care of the Sick” and “Sick-room Fare” are applicable. Gargles, and rinsings of the throat, mouth and nostrils, are

indispensable. The patient should stay in bed until the peeling of the skin has come to an end. He should adhere to the diet as long as possible, to prevent after-disease, especially inflammation of the kidneys.

Schroth's Treatment. (See Index.)

Sciatica, Hip Nerve Pain, Hip Pain (Ischias). —

Sciatica, or hip pain, is a very common nerve affection. The disease may affect the whole region of the hip, or only occupy a small part of the same. The causes are of very many kinds. I name the following: Taking cold, wet, sitting with feet on a cold wet floor or on stone benches, injuries of various kinds, pressure of an enciente or lying-in; chronic constipation, by which the hardened fæces retained on the branches of the sciatic nerve presses upon them; further inflammatory processes and new formation in the pelvis, blood stagnation in the neighbouring veins, inflammatory affections of the covering of the spinal cord, etc.: finally, constitutional and infectious diseases, as gout, tuberculosis, syphilis, diabetes, intermittent fever, typhus, etc. In reference to its appearances, they are for the most part unilateral. The pains continue in the greatest number of cases uninterruptedly, and extend over the pelvis, the back, and outer surface of the upper and under thigh to the ridge of the foot or the toes. Sometimes a casual increase of pain is noticed. The smallest thing then brings on the approaching pain with intensified force, as the bending of the knee, an involuntary motion of the leg, an accelerated step, a laugh, cough, sneezing, etc.

An attack may continue for minutes, hours, or even days, with uniform intensity, or intermittent, with pauses of perfect freedom from pain. The treatment must be directed towards the fundamental disease, as sciatica hardly ever presents a case in itself. In doubtful cases the general cure for entire system invigoration must be chosen, in which careful and intelligent massage and health gymnastics, air, light and sun baths, aperient enemata, and a plain and easily digested diet form the chief features. The palliative for the amelioration of violent pain consists in the application of damp heat. Either constant damp compresses, which must be renewed every seven to ten minutes, must be applied, or the patient, when he is able, must take a vapour foot bath (Fig. 127), or an increasing sitz or half-bath. In case he may not be able to sit up, he must be continuously laid upon a Kuhne's cane-

chair vapour bath apparatus (Fig. 117), and the steam conducted through its channels, placed opposite to the hip and legs of the patient, or, instead of the cane-chair vapour bath, a bed steam bath No. 3 can be administered with good effect; or the painful leg or hip simply placed against hot water bottles rolled up in damp cloths. After the treatment by either steam or hot water has taken place, the part treated must either be bathed in water at 77° to 81° F., or a whole body bath at 81° to 85° F., or a half-bath at 85° to 89° F., be given.

Scorbut. (See Scurvy.)

Scotch Bandage. (See Index.)

Scrofula, Disorders of the Glands. — Scrofula is not confined to a single form of disease, but admits a long list of symptoms, which are occasioned by a poor state of the blood in childhood. The body has a superfluity of moisture in its tissues, and the lymph vessels are therefore greatly overcharged. The blood is watery, changes of tissues are impeded, and deposits of foreign matter are formed; a store of foreign and innate poisons accumulate in the body which continually irritate all the organs and tissues. The lymph vessels especially are in a state of chronic inflammation, as indicated by various pathological changes, which I shall discuss later. Unfavourable conditions of life surrounding the child conduce to scrofula. This is why we see it so often among the poor, who suffer from want of wholesome food, light and air, and are exposed to damp and dirt. Smallpox, which permeates the child's body with animal pus, may be regarded as one cause of scrofula. The first symptoms generally appear towards the end of teething, in the form of painless swellings of the lymph glands. The swellings develop considerably, and may be of any size up to that of a pigeon's egg, and appear in the lower jaw, neck and throat, and also on the back of the head, in the elbows, waist and armpits. They either diminish as time goes on, partially or altogether, or they inflame and turn into abscesses that discharge their contents either inwards or outwards. But the effect is not confined to the glands alone, it acts upon other parts of the body, and exposes it to very serious illness if the constitution is so disposed. In addition to the characteristic glandular swellings just described, there is often enlargement of the tonsils accompanied by inflamed sores, catarrhal affection of the throat and difficulty in breathing. The membranes of the

nose, the internal ear, the windpipe, the bowels and other passages, are all affected. Cold in the head and running from the nose, inflammation and discharging of the ears, cough, catarrh of the bowels, white discharge (in little girls), represent the appearance of scrofulous affections on scrofulous soil. The epidermis is often attacked with moist ringworm, generally in the face and on the hair-covered scalp. Among the organs of sense the eyes are most sensitive. There is running from the glands, inflammation of the edges of the lids, eczema on the lids, inflammation or thickening of the cornea and swellings upon it, as well as weakened sight. Bones and joints often participate in the severest forms of scrofula, by which the walking powers are impeded. A little child thus afflicted presents a peculiar appearance, the so-called *habitus scrofulosus*. They astonish you by their plump condition and pallid complexions. The muscles are limp and weak, while the adipose deposit is strongly marked and the abdomen often distended. The face is puffed up, the nose thick, the lips swollen, so that the expression is most pitiable. At the same time other scrofulous appearances are noticed—fragile, light build, white, transparent, thin skin; red, rather hectic, sharply-cut cheeks and intelligent expression, which only show a constitutional tendency to pulmonary consumption.

Scrofula assumes many different forms. In many cases recovery is attained before puberty, that is, before the fourteenth or fifteenth year, by which time favourable cases are quite well. Even should severe trouble in the bones and joints be of long standing, and the cases of glandular inflammation be obstinate, death is by no means certain.

The fewer parts affected, the sooner it is possible to afford the little patient the help of favourable hygienic conditions; the earlier treatment on natural principles is begun, the quicker will the recovery be, the more favourable the chances of complete cure.

The treatment consists in a careful General Strengthening Treatment. Prominent in this treatment are the use of sitz baths, 86° F., twice or three times a day, cooled down to 73° to 77° F., or, instead of these, one or two half-baths, 75° to 79° F., duration five to ten minutes. Apply two or three bed vapour baths No. 3 every week, but, in summer, sun baths. One important factor is the food. For the overfed children of the upper classes it should be principally vegetarian, young succulent "greens," lettuce and fruit, and also

carrots. Children of the poorer classes, to whose monotonous diet of carrots, bread, coffee, their sickness is attributable, may eat fewer carrots, and have plenty of vegetables, fruit, eggs, milk, and easily-digested meat. Cod-liver oil should be avoided. It arouses loathing, and thereby impedes digestion. To reduce the swollen glands, apply massage in the form of gentle friction, stroking, kneading and pressure, and apply also stimulating local packs, 73° to 77° F., at night. If the glands show any tendency to suppurate, apply four or six vapour compresses successively twice a day, letting each one remain eight to ten minutes on the affected gland. If this does not succeed in dissipating and drying up the matter, and if the skin over it gets red, then blue-black, and gets thin and transparent over a raised part, the abscess is about to burst. This is generally accompanied by fever. When the head has cleared out, apply the bandage prescribed under "Wounds," for abscesses, as long as they discharge, cannot close. Inflamed eyes require the local treatment given under "Eyes, Inflammation of the, Acute," and "Eye Diseases." As a rule, the use of bandages on the eyes, 73° to 77° F., renewed every two or three hours, eye baths twice to four times a day, and ablutions of the eye four to six times a day, when the eye should be gently washed with a linen rag soaked in 77° F. water, and used from the outer to the inner angle of the eye, will be sufficient. Eczema needs the treatment given under that heading. (As regards the treatment of the membranes of the bones and the affections of the joints, consult the articles headed "Nose," "Mouth," "Larynx" and "Intestine" (Catarrh of the); also "Joints, Inflammation of the," "Bones, Diseases of the," "Ear Diseases," "Catarrh, Bronchial," etc.

Scurvy. — Scurvy proves the existence of a disorder arising from the nature of the food, and based upon which a poverty of the blood and humours develops, leading up to bleeding and inflammation of various tissues. It appears on land as well as on sea, under similar circumstances, where, in non-addition to a monotonous nutritious diet, long exposure to wet and cold, continual excessive drinking, drinking bad water, overcrowding in small or insufficiently ventilated rooms, bodily and mental strain, etc., are to be coped with. On vessels, especially sailing ships, where, every day, salt meat, such as pickled pork, is set on the table; in prisons, reformatories, etc., where the command, as regards food, is "Either that,

or none," scurvy is of frequent occurrence. The first stage of the disorder is usually marked by general weakness and weariness, emaciation, heaviness of the limbs, drowsiness, indifference; yellow dry skin, especially in the face; sunken, dim, blue-rimmed eyes, loss of appetite, alternating with yearning for acid food; difficulty in breathing, headache, and palpitations follow. To these may be added drawing and irritating pains, especially in the loins and extremities; great mental depression, susceptibility to cold and longing for bed. In a few weeks the gums become blue or dark red, inflamed and painful, either all over or in certain places. The tissue of the spongy gums is inclined to bleed, the teeth loosen and drop out. The inflammation often spreads to the skin of the cheeks and lips, which discharge a foul, dark, bloody humour. Besides these symptoms, characteristic of scurvy, the inflammatory state of the gums and membrane of the mouth, bleeding in various parts of the body is set up, not only from the skin but from various membranes, especially of the air passages, the nose, the bowels and the uterus. Often swellings occur in the connective tissue of the under-skin, sinews and muscles, and under the cartilage over the joints in any and every part of the body. They are of various sizes, and sometimes turn into ulcers. Similar swellings and ulcers are found on the vital organs. There is no fever, however, unless the disorder assumes a pyæmic (poisonous) form. It generally lasts from six to eight weeks, in severe cases even longer; is very liable to relapse, and, unless the patient can escape the original cause of his illness, it is apt to prove fatal.

The General Strengthening Treatment is very suitable. A word may be said here as to suitable food. Juicy fruit, young fresh vegetables (leaf and root kinds) and digestible cereals, should form the principal part. The inflammation of the gums and mucous membrane of the mouth requires the local treatment given under "Mouth, Catarrh of the." But never omit to add a few drops of freshly-squeezed lemon-juice to the water used for rinsing, nor to put pads of soaked wadding between the gums and the lips at night.

Sea Bathing. (See Index.)

Seasickness. — Most mortals that go on a voyage are seasick. The motion of the boat on the water, especially when the waves swell and sink slowly, occasions a sickness of which the characteristics are dizziness, headache, congestion

in the head, nausea, vomiting, abhorrence of all food, pressure and pain round the heart, general lassitude and weariness, and an unusual degree of depression. The worst symptom is the sickness, in which first the swallowed food, then bile, and lastly an egg-white fluid appear. As it increases, the intervals between the attacks of sickness get shorter; sometimes the vomiting is so convulsively permanent, the pains in head and stomach so unbearable, and the spirits so depressed, the mind so desperate, that the patient believes his last hour has come. Constipation is generally set up, though some persons who have a tendency that way suffer from diarrhœa, which comes on with each attack of sickness, and makes the situation so much more pitiable. Lying on the back, with closed eyes, is the only thing that can alleviate seasickness. Owing to its duration, seasickness ranks among the most unpleasant afflictions. It may last hours and days, or even the whole voyage.

The treatment is limited to precautions in taking food. Apply cooling compresses to the head, and a stimulating bandage to the body, 68° to 72° F., if possible. The will-power is often entirely paralyzed.* There is nothing else to be done, whatever is eaten comes up again. As preventatives of seasickness a great number of remedies are recommended. But if this or that has proved beneficial in one case, the effect must be ascribed to the individual constitution, and its power to withstand seasickness, rather than to the remedy used. It is best, on going on board, to keep up one's usual habits as much as possible; not to eat too much nor too little; to remain in the fresh air on deck, and to keep near the middle of the boat, and to avoid watching the rolling of the waves. But if these common-sense remedies are of no use, and they generally are not, and seasickness comes on, the best thing is to give in, retire to the privacy of one's cabin, and await with dignity what cannot be altered.

Sebaceous Glands, Diseases of the. (See "Acne.")

* The editor was attacked by seasickness on a long voyage, on his journey to South America. He was first taken ill in a storm in the Bay of Biscay. All energy, as far as his will was concerned, forsook him so utterly, that when his watch was flung out of his berth by the violent motion of the boat, he had not the strength to rise and pick it up. So it lay half-a-day on the floor, until the steward discovered it and picked it up.

Seeing Stars. (See "Eye Diseases.")

Self-Abuse. — By this term we understand an unnatural mechanical irritation of the sexual organs — which (without any physical connection) is practised by a man or woman upon him or herself to excite lust. The result of this unnatural proceeding is, in a man, a discharge of germ matter, in a woman, of a viscid fluid. This abuse of one's own organs is followed by the most awful consequences to body and mind, all the worse if they make their appearance after excesses in a natural way. For the excitement to body and mind is far greater in the awful sin than in the legitimate connection, as the imagination is most thoroughly aroused in creating and completing the object. The excitement lasts much longer, and the consequent harm is so much the greater. The more immature the sexual development, the deeper the effect of the abuse of the organs on the generative powers and on their important functions. The sexual organs are matured too early at the expense of the generative organs, while the rest of the body, impeded in its growth, remains weak, betrays a marked disposition for injurious influences, and very little power of withstanding them. It is unhappily a fact that, in our present overdone, cultured condition, when children share the pleasure and recreation of adults, the sin of these secret practices has terribly increased in both sexes, and this corrupted state of affairs exists very largely in our schools and boarding-school houses. It is true not everybody is disposed to err in this sensual way. The bodily and mental disposition to it may be brought about by surrounding circumstances, or there may be hereditary disposition. An acquired tendency may result from chronically inflammatory affections of the sexual and urinary organs, stimulating food, heated imagination, especially with idle people; from local irritation by the clothes, the effects of heat, congestion of the sexual organs occasioned by riding, especially in women, etc. Considering the aim of this work, I will not enlarge upon the subject further in this place.

Sexual Organs (Female). (See "Women's Diseases.")

Sexual Organs (Male). (See "Chancre and Gonorrhœa.")

Shingles. (See "Pemphigus.")

Shivering. (See "Fever Treatment.")

Short-Sightedness. (See "Eye Diseases.")

Shot-Wounds. (See "Wounds.")

Shoulder Pack. (See Index.)

Shower Bath. (See Index.)

Shrinking of the Prepuce. (See "Phimosis" and "Gonorrhœa.")

Sick Nursing. (See Index.)

Sitz Bath. (See Index.)

Skeleton, Human. (See "Bones.")

Skin, the.—For further information regarding the construction and action of the organs of the skin, refer I., Chap. 18,



Fig. 398. Papillæ of the Skin.

(Magnified 250 times.)

In the papillæ are seen hair follicles, touch corpuscles, nerve terminals (sensory).

p. 150. I have already touched upon the fact that the human skin consists of three coats: 1. The outer, or epidermis;

2. The middle, or rete mucosum; 3. The innermost, or corium. As the reader has already seen from my earlier descriptions, the epidermis covers the respective parts of our body, not only "to prevent the bones from falling out," but to carry out its real and important work to regulate the temperature of the body. I must,



Fig. 399. Human Sweat Gland.

a. Body of gland. b. Duct of the sweat gland.
c. Network of capillary vessels surrounding the gland.

however, refrain from carrying out my original purpose, as the appointed

space has already been filled by matters of equal importance, at least to the reader. In further explanation of Fig. 16, I append two more diagrams, Figs. 398 and 399. The explanatory text is on p. 152.

Skin, Care of. (See Index.)

Skin, Diseases of the; Cutaneous Disorders.

(See under corresponding detailed "Symptoms of Diseases," in Index.)

Skull, the Human. (See "Bones.")

Sleep and Dreams. — To the questions "What is sleep?" and "In what does it consist?" physiological research has hitherto not given a satisfactory reply. The ancients considered sleep to be sacred. Virgil called it "A gift of the gods." We will not call it the brother of death, for it is the most beautiful regulator of our organization, "the most nourishing dish at Nature's feast." (Shakespeare.) After all our investigations, the so-called chemical hypothesis in the solution of the problem is as follows: Sleep is the repose of nerve and brain, the laboratory of our mental existence; it is the cessation of self-consciousness, or, expressed mechanically, the opening of the brain register. For the sake of the brain, sleep has been ordained by Providence. The brain can be best compared with a telegraphic centre, with which the different senses are in connection. At the head-office an enormous amount of work is carried on every day, and at night great fatigue and relaxation are the consequence. Just as in the muscular tissue, after protracted activity, certain substances, named fatigue-substances, collect and create the feeling of weariness, so we shall not be far wrong in supposing that the brain mass is subject to the same laws of weariness and to relaxation as the muscular tissues and all the organs of our body, and that the amount of elasticity of any one of them, expended during mental activity, is recouped during sleep. The brain and nerve mass have also, in common with every other organ, the law of change of tissue, the so-called oxidation. Both laws act so far upon each other, as the fatigue substance is the result of oxidation. During sleep these substances are replaced throughout the body by the oxygen. During sound sleep every organ rests, excepting only the heart and lungs, which go on, although less rapidly. In waking hours the heart beats seventy times in a minute, in sleeping, only about sixty times. Thus both heart and lungs do rest at night, provided that the former is not disturbed by agitation of any kind, and the latter are not hampered by foul air in the apartment. Digestion goes on in a minimum degree during sleep, as the proverbably expresses it, "Good sleep is half our food." Incentives to sleep are great corporeal

and physical exertion, cold, horizontal position, heavy meals, general relaxation, alcoholic drinks, narcotics, absence of any exterior impression on the senses, monotonous sounds, light reading, wearisome lectures. A sensation of weariness takes possession of the body; the limbs grow heavy, slightly flexed; the eyeballs roll upwards and inwards, the eyelids droop, the head rolls backwards and forwards, the countenance loses all expression, the breathing is slow and light, the pulsations decrease (as already seen, ten a minute), heat production diminishes, in short, the whole process of living is slower. Interest in the outer world decreases, the susceptibility of the senses to outward actions ceases, the thoughts stray hither and thither, logical thought is suspended, the pressure of the couch is no longer felt, a sensation of swaying creeps over you, consciousness leaves you—you sleep. The deepest sleep is at the beginning of the night. The longer it lasts, the more refreshed and strengthened you are. During the first hour the deepest sleep is attained, after that it grows lighter and lighter. In sound sleep all connection with the outer world ceases, but not if the slumber be light. Many sleepers are under the influence of some outward cause, and when this ceases they awake. The miller, accustomed to the clapper of his mill, wakes up if it stops; the child that has fallen asleep to his mother's lullaby becomes wakeful, and begins to cry as soon as she ceases; and persons are awakened by the stopping of a clock with a loud tick, by the extinguishing of a night-light to which they are accustomed, by the stopping of the carriage in which they fell asleep, etc. If the mental powers are not perfectly at rest, e.g., in case of nervous excitement, or if the sleep has lasted too long, a dreaming condition sets in, a sort of half-sleep. All sorts of mental experiences, passions, sorrow, sentient ideas, even more or less logical trains of thought, are present to the sleeper, but he cannot express them, since he has no control over his nerves, muscles, etc. He is incapable of voluntary motion, as is shown by the frequent phenomena in sleep of being in danger from which flight is impossible; that the sleeper tries to move and cannot stir a limb; that he wants to summon help, and the tongue appears paralyzed. Yet certain groups of muscles are available, as some dreamers prove who ramble, or can talk reasonably and cry; and somnambulists who climb out of the window, scramble over the roof without any risk so long as they are unconscious of the danger of their doings.

It is only when wakened by a call that they are conscious of the danger of the position. They recognise it, and run the danger of falling. Nervous children often wake up frightened and trembling after a restless sleep, cling round their mother's neck, cry and moan, answer questions, are petted and soothed, and yet are quite overwhelmed by sleep and dreaminess. It takes some time before they are quite aroused.

The representations in dreams are based on actual facts and impressions on the senses, but clad in fantastic garb. There is an undoubted connection between the visions of a dream and corporeal actions. The repletion of the stomach at supper, even the position in bed, in connection with folding the hands over the chest, tend to the conception of fearful suffocation and oppression. The dream often lasts only a few seconds, during which the sleeper seems to live for years. To attribute any prophetic meaning to dreams is superstition. If the irritability of the brain is soothed, awakening follows. The mental powers are strengthened anew, the senses are invigorated, muscular action is restored, a general feeling of comfort is experienced in every part of the body, and desire to work, to be in active motion, pervades the mind.

The need of sleep is greatest in childhood, and decreases with advance in years. Phlegmatic natures have more disposition to sleep than livelier ones. Brain workers, who use their muscles but little, require sound and uninterrupted sleep much more than those who have only bodily work to do, and whose brain has no claim upon it. Children should be allowed to sleep as long and as often as they like. Up to the time they go to school this is easily done. But then a great change comes. The child no longer gets as much sleep as he needs. At the age of from ten to twelve a child requires ten to eleven hours' sleep. He gets, as a rule, about eight or ten. But if the body does not get sufficient sleep, the brain and nerves cannot rest sufficiently, and the organs are incapable of doing their work. Specially anæmic and nervous children require unlimited sleep. If they do not get it, body and mind may be very injuriously affected. And for adults of every age and position it is of the utmost importance that they should have sufficient sleep, the best and most effectual means of restoring the strength expended by day, and of maintaining health. Disturbed and insufficient sleep diminishes one's energy, enterprise, and peace of mind,

replacing them by restlessness, nervous irritability, and ailments of every kind. "Deprive man of hope and of sleep, he is the unhappiest creature on the earth," said a great philosopher of the eighteenth century.

Sleep, Rules for. (See Index.)

Sleepiness, Unnatural.—Unnatural sleepiness may have most varied causes. It is the result of exhaustion in consequence of excessive loss of blood, or secretions of brain affections. It is connected with fevers of long duration, as typhus, intermittent fever, scarlet fever, and in the incubation of certain infectious and epidemic disorders. The excessive use of alcoholic liquors, the abuse of narcotic poisons, the too strong effect of sun and vapour baths, coal gas, etc., may bring about abnormal drowsiness.

The treatment must be directed to the exciting cause. In many cases it is desirable to act in accordance with the symptoms, that is, to combat the separate symptoms. In very extended sleeps it is necessary to mark the time exactly when the sleeper wakes, partially or entirely, to hand him some food, or to assist him in carrying out his natural functions. Feeding tubes must only be used after consulting an experienced Natural Treatment physician, who will also decide as to the reason of the drowsiness. Great care must be taken never to rouse the sleeper noisily.

Sleeplessness. (See "Insomnia.")

Small Intestine, Inflammation of. (See "Intestine, Catarrh of the (Acute).")

Smallpox; the True or Natural Smallpox.—Natural smallpox arises both in individual cases (spontaneously, or, as some say, *de novo*), or, and this is most frequently the case, spreads among a large number of patients, as an epidemic.

Smallpox is an infectious disease, nevertheless, for the infection to take place, a predisposition is necessary, that is to say, the person infected must have a body overladen with foreign matter. The so-called protective inoculation, or vaccination, against smallpox, is no protection whatever; on the contrary, the more the body is saturated with inoculating poison, or the poison of vaccine, so much the greater mass of foreign matter does it contain, so much the less is its power of resistance, and so much the more susceptible is it to infection. The cases in which people who have been

several times vaccinated fall victims to smallpox infection may be regarded as belonging to the rule rather than to the exception. (See on this subject, p. 218 et seq.) Between the moment of the infection and the first appearance of the signs of the disease there is a period of from ten to fourteen days. The incubation stage, however, may be of shorter duration, which is often the case, or it may also last for a longer time. During the lethargic or incubation stage of the disease, the infected person feels dull, tired, and uncomfortable, taking no pleasure or interest in anything. Then, accompanied by relaxation and weakness, general discomfort and inconvenience, pains in the head, back, sacrum and lumbar regions, loss of the appetite and constipation, the evacuation of dark-coloured urine, and other appearances, the fever begins, either suddenly in the afternoon or evening, or after a short but sharp rigor, or accompanied by great heat. It reaches a height of from 104° F., lasts throughout the night, and on the next morning ends with an outbreak of perspiration, which has a strong, mouldy, or fungus-like smell. In the afternoon the fever returns with increased violence, the pulse beats at about a hundred and twenty a minute. The precursory stage of the disease, which is generally accompanied in the case of adults by delirium, and in that of children by spasmodic movements, convulsions, grinding of the teeth and so forth, generally lasts for a period of three days. The face is, at the same time, red and turgid (swollen); the tongue is coated, the feeling of thirst is greatly increased, the appetite has vanished altogether, the eyes are closed and very sensitive, and the patient is tormented by violent headache over the eyes and in the back of the head.

Sometimes, in the case of men, hemorrhage of the hemorrhoids (bleeding of the piles), and in the case of women, premature menstruation, ensues, while, in the case of children, there is bleeding at the nose. Pregnant women easily miscarry.

Accompanied by wandering pains in the back and limbs, and by great weakness, bitter taste in the mouth, sickness, constipation or diarrhæa, and the secretion of small quantities of dark red urine, the eruption then appears on the swollen skin on the third or fourth day of the disease.

Its appearance, which is accompanied by a slight burning and itching, is simultaneous with a diminution of the fever,

and of the frequency of the pulse beats, and the rapidity of breathing. This is the eruptive stage of the disease. Eruption breaks out at first on the face, the forehead, the nose, and around the lips, in the form of small spots of a reddish colour about the size of lentils, showing in the middle a somewhat raised hard nodule. In the course of a period of from one to three days, all the hairy parts of the head, the neck, the trunk, and the extremities, are covered by the eruption, but not so thickly as is the face.

After a further period of three days, the small nodules on the spots change into small vesicles filled with a bright fluid, and having each a dimple in the middle. The vesicles gradually increase in size and develop into pustules. This process is completed in three days. The same kind of pustule formation may also take place on the mucous membrane of the interior of the body, the air passages, the intestinal canal, the interior of the mouth and pharyngeal cavity (the cavity forming the upper part of the gullet), and even on the eyes themselves.

On the eighth or ninth day of the disease the suppurative stage begins (the stage in which matter or pus is formed).*

Now the little dimple in the middle of the pustule becomes changed into a dark point enclosed within a dull-hued ring, and extending to the periphery or circumference. The corona of the pustule, on the other hand, becomes dark red and swells up. At this stage of the disease the face has a very dreadful appearance, and looks quite deformed. The patient is unable to alter the expression of the face at all, and is sometimes even unable to open the eyes. Now also the headaches and the thirst again increase. In the intervals, when there is no fever, the weakness is very great. The itching and burning of the skin become unbearable, and many of the pocks are then scratched off with the finger-nails or burst of themselves. The pustules on the internal mucous membranes cause troublesome and agonising pains, ptyalism (excessive flow of saliva), etc.

On the eleventh or twelfth day of the disease the drying up stage begins. The contents of the pustules, as a rule

* If the matter is mixed with blood, and the contents of the pustules become thereby discoloured, or ichorous, then this form of smallpox is called "black smallpox."

those of the face first, gradually dry up, forming a crust or scab of brownish red colour, which, when the eruption has been very thick, often covers parts of the body as with a coat of mail. A portion of the pustules breaks, and a sticky, purulent, or matter-like mass is secreted, which then also forms, in drying up, a scab or crust.

Through these processes there arise pains and unbearable itching. Gradually the fever and the turgidity or swollen state of the skin disappear, and profuse perspiration sets in; the scabs gradually fall away, and leave behind reddish-violet spots, which, in the case of the pustules that have been scratched off, or that have burst, form into scars with raised rough margins, and with a dark shading on the surface of the scar. According as inflammatory, gastric, or typhus complications have been produced by smallpox, these symptoms may take a more or less violent course. The most dangerous condition is when a greater portion of the mucous membrane of the interior of the body has been attacked. With children, and with adults over twenty years of age, smallpox often runs an unfavourable course.

Protection against the disease of smallpox, which is rightly so much feared, consists only in keeping the body free from all foreign matter. Inoculation or vaccination does not, as I must over and over again insist, afford even the very slightest protection.

The treatment of smallpox, when once it has broken out, is as follows: The first requirement consists of providing a continuous supply of fresh air and light in the sick room. The room may only be just sufficiently darkened to satisfy the demands of the patient caused by his dislike of light (photophobia), while the windows of the room must, both by night and by day, be kept continually more or less open. The temperature of the room should be kept at from 62° to 70° F. In order to reduce the fever, one should adopt the corresponding Fever Treatment given in Sec. VI. of the second portion of my book. The higher the fever, so much the higher must be the temperature of the water used for the various procedures. The patient should be frequently washed, or in any case sponged with lukewarm water, or should be given a hip bath at from 86° to 90° F. three times a day, the baths lasting from five to ten minutes. In the intervals the trunk and legs should, in bed, be covered with moderately wrung out thick packs, in order to prevent

an excessive formation of pustules on the face; when the violence of the disease has been diminished, the patient should be given one or two hip baths daily. After the bathing, the patient should only be dried by softly dabbing a soft linen cloth on the body, unless indeed one prefers to let him return to bed without being dried at all. At night a 73° to 77° F. neck fomentation, a thick trunk pack at 68° to 73° F., and 77° F. packs for the calves, may be applied, but they must be immediately removed the moment they become troublesome to the patient. When the fever is only moderate, or when it has entirely disappeared, the patient should be given one or two reclining vapour baths (No. 3 or No. 4), followed by hip baths at 88° F., or trunk baths at 82° to 86° F.

The chief thing is—and this is a matter which I cannot sufficiently emphasise—to keep the legs and the trunk continually covered with moderately wrung out damp packs at from 73° to 77° F., in order that the inflammatory affection of the skin may be held within bounds, and in order to prevent a sloughing of the wart-like body of the papillary tissue of the skin. If this be done, cure often follows without leaving any scars behind.

In order to avoid the formation of scars or pock-marks on the face, one should lay upon the face of the patient a damp face mask (composed of four to six folds of soft stimulating compress), at 66° to 68° F., small portions being cut for the eyes, nose and mouth. This mask must be worn continuously, and must be kept moistened by sprinkling with water at the temperature of the room. It should also be frequently replaced by a fresh compress. It is necessary to warn those in charge of smallpox patients on no account to rub astringent and disinfectant substances (collodion, mercurial ointment, tincture of iodine, etc.) on the skin. The formation of scars is not in the least prevented by these means, but in all probability what will happen is the bringing to a complete standstill the power of secretion and excretion of the skin. In the drying-up stage, meanwhile, one may, instead of applying damp warmth to the skin, sponge the crust or scab two or three times daily with damp medicated wool, and then dry it with dry medicated wool and powder it with rice powder. During the whole course of the disease the patient must diligently gargle every two or three hours with water at the temperature of the room, and the nurse should

also wash out the mouth and the mucous membrane of the lips with a clean linen rag, and syringe the nose and the ears frequently with water at 82° to 86° F. The evacuation of the bowels must be kept normally regular by means of laxative enemas at 73° to 77° F. After the bowels have been opened, an injection, that is to be retained (the temperature of which should be from 66° to 68° F.), is to be given.

The dietary must be mild and non-irritating (for full details of smallpox dietary, see under "Sick Room Fare," in the Index). In this dietary, however, I may here mention that the foremost place must be given to fresh water, lemonade made from fresh lemons, raspberry water; the juice of stewed fruit, thinned with water; fruit soups, stewed fruits, water soups, flour soups, milk soups, oatmeal broth, pap made with groats, stewed rice, barley broth, etc. During the drying-up stage the patient may be given a simply cooked mixed diet.

Smallpox, Artificial Smallpox, Cowpox, or Vaccinia. — Artificial smallpox is an example of one of those infectious diseases intentionally brought on by medical men. As a rule there arises on the fourth day, on the site of the wound that has been made, a circumscribed reddening, in the midst of which there is a small nodule. On the fifth or sixth day the nodule becomes a vesicle of about the size of a lentil, and is surrounded by a red corona. The contents of this vesicle become turbid and purulent in between eight and ten days. Then the pustule gradually dries up, and in three or four weeks the scab that has been formed falls off, leaving, as a rule, a scar or pock-mark behind. The general symptoms which appear immediately after the vaccination inoculation (the inoculation with vaccine poison) are in children usually as follows: Violent fever, spasms or convulsions, disturbed sleep, etc.; the local symptoms consist of a swelling of the lymphatic glands of the throat, swelling of the arm, of the armpits, etc. In connection with these symptoms there often arise, as sequelæ (or diseases that follow as the after-results of another disease), erysipelas, following vaccination; ulcers of the skin; eruptions, varying in their nature and intensity from a simple attack of German measles to weeping or running, suppurating eruptions, and spreading over the whole body; gangrene on the parts vaccinated; inflammation of the lymphatic glands of the throat and of the armpits, which may develop into wearisome and weakening suppurations;

inflammations and caries (or bone-decay) of the elbow joints; inflammation and paralysis of the nerves of the arm, involving disturbances of the power of movement; scrofula, rickets, tuberculosis, syphilis, etc.

The only "protection" against "protective," or artificial smallpox, is the evasion of the State-imposed operation of vaccination. On this subject I have already expressed myself very fully in I., Chap. 21.

Since, however, it appears that, in spite of the recent laws to grant exemption, parents are still in some districts coerced into having this "quackery" practised on their babes, it may be useful to give some guidance how to proceed when a child has been vaccinated, that is to say, poisoned with pus taken from one of the lower animals. In such cases the following curative treatment may prevent the otherwise inevitable incidence of the above-named dreadful sufferings. Immediately after the inoculation one should suck the vaccination wounds strongly with the mouth, if possible until the wound bleeds; then one should spit out the poisonous mass, and thoroughly cleanse the mouth with frequent rinsings with water of the temperature of the room.

Whoever follows this procedure should be careful to see that his or her mouth is free from scratches, cuts, abrasions, and hollow teeth; and in rinsing the mouth as described, mix some non-poisonous or only slightly poisonous antiseptic (say lysal) with the water, and after several rinsings, retain it, the last time, for some eight or ten minutes in the mouth, for there are few antiseptics sufficiently non-poisonous to be taken into the mouth safely, which are also sufficiently strong to sterilize the oral cavity in a shorter period than from eight to fifteen minutes.

After this the wound should be covered with a stimulating compress of 72° F., and well wrapped up in wool. The compresses should be changed as soon as they become warm; this treatment should be continued from one to two days, at the same time a stimulating three-quarter pack at from 77° to 81° F., or reclining vapour bath No. 3, should be administered. These procedures, which are intended to stimulate the whole body to the excretion and throwing off of any poisonous matters that may be present in its fluids, should be continued for from eight to fourteen days. The diet should consist chiefly of mucilaginous articles, such as oatmeal water, barley water, etc., and also plenty of fruit.

Smallpox, Spurious; Chicken Pox, or Varicella.

— What we know as chicken-pox in England has a number of distinguishing names in German, such as “point-smallpox,” “wind-smallpox,” “water-smallpox,” “sheep-pox” and “stone-pox,” or *variolaë verrucosæ*. They are all, however, probably only a mild form of the natural or genuine smallpox, and make their appearance, for the most part, as children’s diseases. After the incubation period of about fourteen days, there appears upon the face an eruption that takes the form of separated small red spots. This eruption soon spreads over the whole body. It sometimes happens, however, that the eruption breaks out first on the trunk and limbs, and only then attacks the face. Indeed the face may sometimes, though rarely, escape the eruption altogether. The germinating stage of the disease is generally a very short one. Already, after the lapse of from twelve to twenty-four hours, there are visible upon the spots small vesicles surrounded by red coronas, and filled with a bright, clear fluid. Then the fluid becomes turbid and milky. After one or two days it becomes matter-like (purulent) and yellow, whereupon the vesicles dry up and leave behind a thin crust or scab, which, in a short time, is thrown off. There then remains, for a short time, only a slight reddening of the skin, and occasionally—but this is very rare indeed—scars or pock-marks are formed.

The characteristic sign of this spurious smallpox consists in the phenomenon so often observed, that during the course of the disease fresh vesicles are gradually formed, so that, finally, dried up vesicles and fresh vesicles may be seen side by side. Occasionally the eruption appears also on the mucous membranes of the internal organs, especially in the mouth, in the nose, in the throat, and so forth. Only insignificant complaints, however (such as sore throat, difficulty in swallowing, hoarseness, etc.), are brought about by this means.

In the eruptive stage a moderate fever is present, but it seldom causes the temperature to be much higher than 104° F.

The treatment of chicken-pox is similar to that prescribed for the treatment of true smallpox, but milder in its form.

Snake Bites, Snake Poisoning. — In speaking of snake poisoning, we can only refer to the sole poisonous snake found here, the viper.*

* Although in our neighbourhood only three sorts of snakes exist, acquaintance with them is not sufficiently impressed upon the

Violent pains from the wound left by the bite, running through the whole body in the direction of the heart, swelling all round the bite, always increasing in size, and becoming dark blue; headache, dizziness, roaring in the ears, sparkling of the eyes, blackness under the eyes, vomiting diarrhœa, fainting, shivering, convulsions, cramp, etc., represent the symptoms of poisoning.

Treatment: If, as is generally the case, the bite is in one of the extremities, lay a so-called "vein press" on the wound. (See "Bleeding.") Then suck the poison out of the wound, or let some one else do so, provided that neither the lips or tongue are in any way injured or sore, as in that case the poison would pass into the system. The wound should be sucked until it bleeds. Or it may be washed thoroughly, and then cauterized, or treat it with caustic potash, as described under "Phosphorus Poisoning." Over this lay

people. All three are often killed for the snake of the single poisonous one, and even the useful blindworm is destroyed as a snake. Whoever knows anything about these creatures is aware that the ringed adder is known by its size and the yellow stripes on its head. You would hardly believe this creature could frighten anyone, for its puffing betrays its own terror. It is not so easy to distinguish the ringed adder from the smooth, which is also called the sling adder, the Austrian and Thuringian adder. The head of the ringed adder is triangular, and the neck is comparatively thin. As regards muscular strength, the two snakes are very differently fitted out. You can hold the ringed adder by the tail without its being able to bend upwards to the hand. Snake catchers make use of this fact in their work. They press the head down with a stick, and lift the snake without the least risk. But it should be remembered that among hundreds there sometimes happens to be one of greater muscular power. Therefore, a little caution is advisable. If you seize a sling adder by the tail, it twists round at once on the hand or finger, and bites so fiercely that the wounds bleed. They may safely do that, as the bite is quite harmless. It gets its name from twisting round and compressing its prey, the lizard. In many places it is called the hazel worm, and considered a variety of the ringed adder. Snake catchers let the adders spring on their bodies and bite, and then put them into their box.

Ringed adders, on the contrary, can neither climb nor swing themselves forward any distance, for they lack the muscular strength. The confusion between the two explains the opinion that the ringed adder is noxious, and bites people that come in its way in a mad rage. It cannot be tamed, though the sling adder is tamed in a very short time. On days when thunderstorms are near, the ringed adder will not stir from its place in the damp heat, and these are the days when children gathering berries are usually bitten.

a stimulant and rather thick pack, 68° to 72° F., and renew it whenever it becomes hot or dry. By the help of vapour baths, local vapour applications, irritant whole or three-quarter packs, the poison will be separated from the blood. (For further treatment, see "Blood Poisoning" and "Wounds.")

Snoring. — When, during a sleep, the soft palate is moved backwards and forwards, a little stretched, and (owing to the raised root of the tongue) set into vibration by slow deep breathing, a snore is heard. It arises from a contraction of the throat, which prevents the passage of the air inhaled through the mouth, for this is generally open in snoring.

The treatment is the same as for sleeplessness (see "Insomnia." Do not sleep on the back, live temperately, and sup as early as possible. Calling or rousing the patient is of no use.

Softening. (See "Diarrhœa.")

Solar Plexus. (See "Brain" p. 864.)

Sole Bath. (See Index.)

Somnambulism. (See "Hypnotism.")

Soothing Infants. (See "Suckling or Nursing Infants.")

Soothing Treatment. (See Index.)

Sore Breasts. (See "Women's Diseases.")

Sore Nipples. (See "Women's Diseases.")

Sore Throat. — Sore throat is a disease of the mucous membrane of the gullet, the tonsils, the two palates, the soft palate and the uvula. On inspection of the throat, the membrane of the gullet will be more or less inflamed, both tonsils swollen and inflamed, and sometimes dotted with small white spots. Salivation, difficulty in speaking and swallowing, also more or less feverishness, with its manifold accompanying symptoms, are the ordinary signs.

The treatment for the general condition is a cooling draught, for the local trouble a stimulant. Also application of stimulants alternately with water compresses. (See further, under headings "Diphtheria" and "Cramp.")

Sores, Bed (Decubitus). — People who are confined to their beds for a long period often acquire, on those parts of the body where the bones are only covered with skin, an inflammation of the skin consequent upon the long-continued

pressure. This inflammation begins with burning pains, and exhibits at first only a slight reddening. Soon, however, suppuration commences, and finally develops into gangrene. When this takes place the fleshy parts of the body also become affected.

In order to prevent bed sores, one should in the first place adopt the measures and follow the rules given in the Chapter on "Care of the Sick," p. 408. When, however, the skin has already been broken, then the wounds should be frequently cleansed in the day by means of syringing them with water at from 86° to 90° F., or by dabbing them with moistened cotton wool. The patient should also be given from one to two warm complete baths, the exact temperature of which does not much matter, and in the intervals continuously soothing and cooling compresses at from 77° to 81° F.

If, however, the patient cannot or must not change his position in bed, under the parts of the body which suffer most from pressure, place a small horsehair cushion, in such a way that the pressure is more distributed. One may also put under the sheet a tanned skin with the hair on, with the fur uppermost. (For further particulars, see under the heading "Wounds.")

Spanish Mantle, According to Kneipp. (See Index.)

Spices.—By spices we understand vegetable products which assist the digestive powers by stimulating the nerves of the stomach. Spices thus are stimulants. They contain alkaloids and ethereal oils, and those which are perceptible to taste as well as to smell are useful as additions to food. While they stimulate the nerves, they also assist the separation in and motions of the bowels, increase the power of digestion, and render the food more digestible. But this is done at the expense of the nervous system. As long as the ethereal constituents of the spice are in the blood, they stimulate it and raise its temperature. Then of course the nerves, owing to the close connection existing between them and the blood, feel the effect. The brain feels it, too, and its activity is for the time increased. No spice contains food, it is just a stimulant, and no more. Of all the spices used in cookery only one is indispensable—Salt. It is a mineral, by the use of which food is rendered more palatable, and the gastric juices have more play. Spices are either aromatic, narcotic,

aromatic-bitter, aromatic-astringent, or sweet. They are further divided into indigenous and exotic. To the former belong parsley, dill, leeks, onions, celery, horse radish and garden radish, capers, rosemary, thyme, marjory, pepper, sage, parsnips, carraway-seed, fennel, aniseed, coriander, juniper-berries, pimpernel, mugwort, basil, etc.; to the latter, pepper, cinnamon, cloves, vanilla, ginger, nutmeg, saffron, laurel-leaves, cardamom, galangal-root, star-aniseed, etc. The excessive use of spice is just as unwholesome as the excessive use of meat, wine, beer, brandy, coffee, tea and tobacco. For children it is specially so. Spices stimulate the nerves at first, only to deaden and weaken them afterwards. Sharp and heating spices should be avoided by persons with a tendency to inflammation, or who suffer from a weak stomach, or a rush of blood to any of the vital organs. How often spices are used to rouse an appetite for food! Drinking people especially are very prone to take pungent spices as a "pick-me-up" for a defective or failing appetite. That generally is the last straw. Napoleon died of cancer in the stomach, he insisted upon an unusually large amount of pungent spice in his food. For everyone, and particularly for those who carry on an everlasting struggle with their stomachs, there is but one remedy to restore the appetite—"Wait, until it comes back of itself." If you have done this, and a good appetite has resulted, do not eat anything until you are really hungry (p. 42). Then you may eat. Hunger is the best sauce. Mark that, "glutton," unless you want to die young.

Spinal Cord. (See "Brain.")

Spinal Cord, Atrophy, or Wasting of the.—

Atrophy, or wasting of the spinal cord (*tabes dorsalis*), is a chronic disease developing into decay of the posterior nerve roots (p. 872). The causes of this illness, dreaded so much because of its incurability, are not yet fully known, and it would be difficult to say whether sexual excesses, protracted chills and drenchings (especially of the legs); syphilis, great deterioration of the juices, which all tend to it, are really the causes of it. The disease runs through many different stages. In the first, the neuralgic, which may be of any length, a peculiar sensation is felt, a sudden momentary convulsive pain in the legs, often regarded as a harmless symptom of a rheumatic nature. Numbness and tickling in the tips of the second and third fingers, and a feeling as if the body were tightly compressed. These may be the sole symptoms for years. In

the second stage there is an impediment in action, generally commencing in the legs, and affecting the walking perceptibly. The patient sprawls along, drags the legs in getting up and sitting down, and stamps the feet heel first. Rising is equally difficult. The legs are set far apart to get a steady footing, but it takes some time before succeeding in getting a just equilibrium. The sensations become disordered. The patient feels as if he were walking on felt, wool, or gutta-percha. If he shuts his eyes he totters, and were he not supported would fall. Intermittent neurotic pains, of varied intensity and in different places, are never long absent from the part affected. Sometimes the pains are transformed into numbness, and finally all feeling goes. Disordered muscular sensation is an important feature. When the patient's eyes are closed, he is ignorant of the whereabouts of his own limbs. For instance, if his legs were crossed, he would be unable to say which was uppermost; and if he were told to join the fingers of the two hands, he would have to try several times before succeeding, and would move his hands about until they met by accident. Further symptoms of the second stage are: Swellings of the joints, especially the knee; retention of the urine and disturbance of other functions, and defective sight. The second stage is very irregular in its progress; now it is the same, then better, and again worse; lasts several years before the third paralytic seizure ensues. Now the patient is perfectly helpless; he is bedridden, his limbs are crippled. Diseases of the bladder and kidneys ensue, and the patient dies.

The treatment is a careful application of the General Strengthening Treatment. Water below 72° F. must never be used for any purpose. But a daily sponging in water, 77° F., followed by gentle friction of the back-bone, or slapping it with a wet well wrung towel, is recommended. According to the constitution, apply one or two bed vapour baths (No. 2 or 3), and nightly a stimulating pack (77° to 82° F.) on body and calves, and a thick, stimulating compress laid along the whole length of the spine. For alleviation of the spine, half or body baths (86° to 90° F.) may be taken for five or ten minutes, or tepid (90° to 92° F.) full baths. Other beneficial measures are air and sun baths, foot vapour and chair vapour baths, friction and curative gymnastics, reasonably applied. The diet should be plain. If these instructions be followed, and other systems let alone, medical or electric, the patient's

life may be prolonged many years, even if he cannot be completely cured. For the rest, the aim must be to improve the patient's general health, to counteract the consumption, to strengthen the nerves by natural means.

Spinal Cord and Brain, Hardening of the (diffused), is a chronic disease, in the course of which numerous, hard, scattered, inflamed accumulations set up in the spinal cord and the brain. There is no certainty as to its cause, but previous infectious fevers (smallpox, typhus, etc.) appear to be favourable to its development. At first the patient suffers from congestion of the head, with pressure and pain, digestive disturbances, neuralgia in the legs. Further on are added convulsions of the eyeballs, obstruction in speech, increased irritation of the skin and nerves, low spirits, mental aberration, apoplectic symptoms. There are tremors which disappear when the patient moves or becomes agitated, but appear when he is perfectly quiet, and these are very significant. They are felt in arms and hands, so that at last all movements involving their use are impracticable. Unsteady gait and tremulous movements of the body are present. The treatment is the same as for "Spinal Cord, Inflammation of the, Chronic."

Spinal Cord, Inflammation of the, affects a section of the cord only—most frequently the back and neck part, more seldom the throat and hip part. The inflammation may be acute or chronic. The causes are errors in living (abuse of alcohol, defective food, bodily strain), colds, wounds, bleeding and disease of the cord itself, fracture of the spine, inflammation, etc., of the membranes, disorders of the vertebræ, infectious and constitutional illnesses, etc. The symptoms are varied and complex, causing disturbances of the motor and sensory nerves, of the nourishment of the muscles, and, reflectively, of the skin and sinews. The symptoms, which are either sudden and quite spontaneous, or foreshadowed by other gradual signs, are a slouching gait, weakness and weariness in the limbs.

These become gradually crippled. If the seat of inflammation is in the upper part of the spine, similar action takes place in the arms and body muscles. The paralysis is never partial, but extends to both sides. Other symptoms are: Convulsions of various degrees and duration, hardness of hearing, occasionally diminished or total loss of sensitiveness in the skin, disorders of the reflex irritation of the skin and

nerves of the legs,* involuntary natural functions, in men painful and darting erection of the penis, gradual relaxation of sexual impulse, inflammation of the kidneys, pressure in the loins and of the blood vessels, etc.

The length of the illness varies greatly. There is a sharp line drawn between acute and chronic forms, and it may last for years with slight variations, but it is incurable.

The treatment must be applied to the fundamental cause. If it is quite impossible to fix upon this, the symptoms must be treated. First apply the rules for "Care of the Sick" (Chap. 38), as well as those of the General Strengthening Treatment, and of "Spinal Cord, Inflammation of the Membranes of the."

Spinal Cord, Inflammation of the Membranes of the.—The spinal cord, like the brain, is surrounded by three membranes, the outer or hard, and two inner ones, which are soft. These are all subject to inflammation.

* As regards a diagnosis of diseases of the spinal cord, convulsions of the muscles are a main feature. There is a distinction between reflex action of the skin and of the nerves. If the soles are tickled or touched with a blunt object, the sensory nerves all round are irritated, and muscular stimulation ensues more or less. Many people are intensely agitated by tickling. But if the connection of the nerves, the skin, and the brain is disturbed, nothing of the sort is experienced. Increased action, or a peculiar abruptness of movement, indicate a failing of the normal sensitiveness. As regards the last condition, there is either increased sensitiveness in one part or other of the action of the nerves, or there is total stagnation in conveying the ordinary effect of the irritation from the skin to the organs, the spinal cord and the brain. Of equal importance, in diagnosing this disease, are the nerve reflex actions, muscular convulsions resulting from irritation of the sensory nerves of the periosteum and sinews. Another important sign is the "knee-jerk," which occurs if the crossed legs are struck by some flat object on the insertion of the quadriceps extensor muscle of the thigh (on the kneecap). In sound persons a quick abrupt movement of the leg will be the consequence. A defect of this sort indicates injury of the anterior grey horn of the spinal cord, or shrinking of the posterior one (tabes dorsalis). The grey matter of the spine is seen, in an oblique section, to be in the form of two half-moons (Fig. 348), each having an anterior and posterior horn. Increased irritation of the kneecap appears later when the spinal cord is paralyzed. In the same way, by irritating other nerves of the arms and legs, reflex movements are caused of great importance in recognising any particular nervous disorder, or disease of the spinal cord.

Inflammation of the hard membrane results from deeply-rooted inflammation of the chest and abdominal organs (as inflammation of the chest), of the kidneys, and tuberculosis of the back-bone. The inflammation may attack either the inner or outer surface of the membrane. That of the inner surface may be hypertrophic or bleeding. The disease may present the symptoms of the fundamental disorder and none of its own, except if suppuration of the spinal cord tissues sets in, and acts upon the surrounding nerves, first irritating and then destroying their power. In the first stage, which may last from six to fourteen weeks, pains in the back of the head and neck, stiff neck, and a feeling of torpor in the arms and hands, are mostly prominent. Sometimes an eruption appears, and convulsion of the affected muscles. The paralytic stage is indicated by muscular convulsions in the arms, especially above the elbow. Then convulsive paralysis of the legs and convulsions come on. The illness is long, may continue for years, and is incurable.

Inflammation of the soft membranes, acute or chronic, results either from inflammation of the pia mater, extending to that of the spinal column, occurring principally in tuberculous inflammation, or it arises in the spine and ascends to the brain. While the causes of acute forms lie in chills, drenchings, injurious mode of life, wounds or injuries of the spinal cord, its membranes, or the back-bone; in inflammation of the chest and abdominal organs, and in infectious fevers; those of chronic form may be caused by all these, and in the setting in of favouring causes in acute cases, and going over from acute to chronic forms; in diseases of the heart, lungs and liver, syphilis, drunkenness, and chronic affections of the spinal cord. Acute and chronic cases present similar appearances, except that in chronic cases there is no fever, unless brought about by the primary cause. The symptoms are as follows: Shivering, fever, severe pain in the back-bone, extending to the chest, arms, and legs; stiffness in the back and neck, and of the head, which is drawn backward, and a feeling as if the entire body were enclosed in a tight corselet; sensitiveness of the skin to touch, sometimes cramp of the bladder and muscles of the lower part of the back. The acute form continues for days or even years, the chronic for many years. If an unfavourable turn be taken, paralysis ensues with convulsions, pathological changes in the spinal tissues, complete anæsthesia of the affected parts, and

involuntary natural functions. Death is caused by diffusion of inflammation to the extended spinal cord, paralysis, suffocation and fever being the direct causes.

The treatment for inflammation of the dura mater, or of the soft membranes of the spinal cord, is given, as far as acute cases go, in II., Part. VI., "Directions for the Treatment of Fever." Stimulating, rather wet body packs, 72° to 77° F., changed every two-and-a-half hours, are important ("Body Packs," p. 483). Or apply, every half or three-quarters of an hour, stimulating spinal packs,* 72° to 77° F., with either stimulating chest packs, if the inflammation is in the chest, or stimulating body bandages, 72° to 77° F., if the loins be the seat of the trouble. Together with the foregoing use arm and calf packs, 77° to 82° F., renewable every three hours. Cold hands and feet should be warmed with hot water bottles wrapped in a damp bag. Constipation should be averted by enemas (77° F.), and small cold ones (63° to 68° F.). One or two half-baths a day (84° to 88° F.), or body baths (81° to 86° F.) may be taken. Further, see "The Care of the Sick," and "Sick Room Fare." Chronic cases may be similarly treated, and the General Strengthening Treatment be applied, adding massage, curative gymnastics, gentle vapour baths, and sun and air baths.

Spinal Cord, Paralysis of the, by Pressure. —

Very often symptoms of paralysis of the spinal cord are occasioned by gradual and increasing pressure on the tissues of the spine. Diseases of the spine, spinal membranes and spinal cord, either with suppuration or followed by formations and swellings of a tuberculous, cancerous, or syphilitic nature, further, inflammatory deposits and formations on the chest or body cavities, suppuration of the aorta, are the usual causes of the paralysis. The disease is often concealed by the symptoms, and the reverse is often seen.

In many cases there are clear premonitory signs, making themselves felt by pain in a fixed point of the back-bone, and stiffness in the neck and back. The suffering is increased by movements of the body, and extends to the body and limbs, following the course of the nerves. Feelings of deafness, tickling, and goose-skin, are frequent. The breaking out of the illness is indicated by feelings of weakness and stiffness,

* Spinal packs consist of four- or six-fold compresses, two-and-a-half to three inches wide, laid over the entire extent of the spine (temperature 72° to 77° F.), covered with a broad flannel, and kept in its place by elastic bands at the top and bottom.

first in one leg then in the other, then in both, and, lastly, by paralysis of both. The paralysis is confined to the lower extremities, if the breast and loin part of the spine is affected by pressure, but attacks the arms if the pressure extends to the neck. The functions of the kidneys and bowels are disturbed, first by retention and afterwards by involuntary emission of their contents. Anomalies in reflex action are observed, especially when the pressure is on the lower part of the spine. The reflex action of skin and nerves is then either numbed, or ceases entirely. But the reflex action of the nerves is normal, and even increased, if the pressure is at the upper part. The result depends upon the character of the fundamental disease.

Convulsive paralysis of the spinal cord is generally an accompaniment of other diseases (inflammation, hardening, etc.) of the spinal cord, and is known by the following symptoms: Paralysis in the legs (both legs), extending to the body and arms; the muscles of the legs and feet are hard and stiff, and unable to move their respective joints, and this causes, as long as the patient can walk, an awkward, stiff gait. The muscles continue to contract, and the hapless patient is finally bedridden. Gradually the muscles undergo changes in the body and arms, so that sitting up in bed is impossible. Sometimes reflex irritation of the nerves takes the place of muscular contraction, but the patient's legs are powerless, and his gait convulsive. It generally ends fatally.

The treatment must be applied to the fundamental cause, and the instructions given under "Spinal Cord, Atrophy of the," followed.

Paralysis of the Spinal Cord by Poisoning, by the inception of mineral or vegetable poisons in the human organisation, such as mercury, lead, arsenic, phosphorus, opium, alcohol, nicotine, etc., occasions very varied paralytic symptoms, the central nerves, the nervous centres, the brain and spinal cord each being liable to attack. Lead affects the spine very severely, and paralysis ensues after protracted poisoning. It seizes the arms, hardly ever the legs.

Treatment can only succeed that includes the discontinuance of the cause. Besides this, the instructions given under "Trade Diseases" may be followed. Read my remarks in the articles headed, "Arsenic," "Lead," "Phosphorus," "Mercury," etc.

Spine. (See "Joints" and "Bones," etc.)

Spine, Curvature of the, may be congenital or acquired. There are various kinds—lateral, the curvature of the bone sideways; or the curvature may be both sideways



Fig. 400. Curvature of the Spine.



Fig. 401. Curvature caused by Bone Decay. Backward Curvature. The top vertebrae are affected by suppuration.

and backward—the backward curve and the forward curve. The most frequent is the lateral, which appears in children of between six and thirteen, generally with a previous tendency; in anæmic children, with flaccid muscles, badly-fed, scrofulous, etc. It is much enhanced by weakness of the pelvis bones and hip joints, chronic inflammatory affections of the vertebra itself, by previous inflammation of the skin of the thorax, and a bad position during writing, etc. The curvature takes place in two parts, on the upper spine and the spine near the waist, just where the weight of the body rests in its efforts to maintain its equilibrium. The curvature comes on gradually, without any tangible symptoms—no pain, swelling, or redness. The curvature resulting from scrofula sets up at the age of from two to four years, but constitutional gradual curvature develops a year or two later, up to the fifteenth year. The only time that a cure is possible is from six to fourteen or sixteen; later, everything is futile. Thus it is imperative that great attention be paid to a child's back during his school-days, so that, should any mischief have arisen, suitable treatment be at once applied. (See the paragraph headed "Trade Diseases," p. 1420). Backward or forward curvature (humpback) arise from weakness of the bones, decay arising from scrofula, or destruction of one or more vertebrae. (See Figs. 400 and 401.) Fig. 401 depicts a humpback

formed by decay of various vertebræ. In such a case the discharge, instead of running outward, has turned inward, and has hardened into calcareous matter. The deformity thus occasioned is formed by the collapse of the spine and its outward curve. The forward curve arises from weakening and disturbance of the vertebræ near the waist, decay of the bones, and defects of the bones in the pelvis. To resume, we find that all lateral spinal curvatures arise without any inflammation, but all backward, combined lateral and backward or forward ones, are inflamed. Another fact is that inflamed curvature affects only a few vertebræ, which form an angle, but non-inflamed curvature extends to a great many, and they form an arch.

The treatment must be applied to the primary trouble. Curvatures resulting from scrofula, etc., must be treated according to directions given for that disease, and those arising from defective bones must be treated accordingly. Naturally recovery is less likely to occur in cases of the latter class. In all cases massage and curative gymnastics are highly beneficial, but may only be used under experienced guidance. Against the adoption of apparati for stretching or pressing the body into an upright position, and other tortures invented by surgeons, I lift up my voice in warning. All efforts to force the curved spine by pressure, drawing, or stretching, prove complete ignorance as to the nature of the disease and its cause, and are not only quite useless, but act injuriously on the disease.

Spirituuous Liquors. (See "Alcohol.")

Spittle (Sputum) consists in an increased secretion or production, and an increased excretion or giving off, of mucus by the mucous membrane with which all the air tubes (down to the finest thread-like branches with which they are provided) are lined. The mucus is for the most part composed of dead cells of the mucous membrane, as well as of particles of mucus and pus and similar matters. In inflammatory affections of the lungs, the spittle occasionally has mixed with it red blood corpuscles and dead portions of the tissue of the lungs, also the "bad" bacilli (that is to say, those that cause disease). The spittle is various in its composition, colour and smell. It may either be fluid or tough; either so light as to be able to float on water, or so heavy that it sinks to the bottom as soon as it falls into water (spittle that contains small portions of decayed tissue, of the lungs,

for instance, sinks to the bottom of water). Sometimes, through being mixed with dust or with soot, the mucus takes on a whitish-grey or blackish-grey colouring. If pus or blood, or the colouring matter of blood, are contained therein, it appears green, yellow, greenish-yellow, red or black. The spittle, in cases of inflammation of the lungs, is characterised at the beginning of the disease by a reddish blood-like colour, towards its termination by a greenish-yellow appearance like matter. Catarrh of the air passages induces a whitish-grey colouring of the mucus that is thrown up. Inflammation of the air passages, on the other hand, produces a yellowish green mattery appearance, and so forth.

Spleen. (See "Digestion, Organs of.")

Spleen, Diseases of the.—Only in the rarest of cases is the spleen found diseased in a primary or self-standing form, it is generally either metastatic or secondary. Its inflammation, enlargement and swelling, are the consequent effects of intermittent fever, typhus, pyæmia, lying-in-fever, liver shrinking, liver syphilis, irregular life, acute skin disease, etc., and the treatment therefore corresponds with that of the fundamental cause. (Refer further to descriptions of above-mentioned diseases.)

Spleen, Inflammatory Carbuncle. (See "Boils," p. 838.)

Sports, Physical Exercise.—Every sport is healthy if carried on sensibly. Like every other part of the body, the muscles should be exercised daily, to maintain health and preserve the necessary equilibrium between body and mind. Physical exercises and bodily motion must be alternated judiciously with mental work, recreation, and with complete repose, if the constitution is to be kept sound. Sports carried out with caution and endurance are a great benefit to health. The exercise sets various muscles in motion, the breathing and perspiration increase, and the latent heat causes the transmutation of matter. Strengthening the muscles by games means strengthening the nerves as well. Nervous irritability and unusual sensitiveness to outside influences disappear for good, the spirits are raised, and replace a bad temper and ill-humour. But if athletic sports are to do the body any lasting good, they must be perfectly suited to the constitution. Any exaggerated, excessive, and aimless athletic sport injures the health. Straining the muscles is most injurious to them and to the entire organisation. Therefore

weakly, anæmic and nervous persons going in for any game must take it quietly, first slowly and gradually, by methodical degrees go on to increased exercise, corresponding with the development of their muscles and skill. Constitutional weakness does not prevent its owner from going in for games. The parts of the body which are called into play must be in good condition. Persons with weak chests, recluses, sufferers from indigestion, hypochondriacs, hysterical people, anæmic individuals and stout persons, etc., ought to take up some game if circumstances permit. Of course every outdoor game is best carried on in fresh, pure air, rich in oxygen, where deep inhalations are necessary, for they serve to expand the chest.* Games are such a positive necessity to the present generation because the rest of our life is so opposed to nature—enervating and unhealthy. Games serve to harden us, as by the throwing off of the moisture in the body we rid ourselves of the superfluous fluid matter, and increase the albumen and consequently the activity of muscle and nerve. (Comp. "Hardening and Enervation" I., 16.) It is well known that an athlete pays far more attention to his health than a person who does not go in for sports. An athlete notices the least indisposition, for it affects his activity. He puts himself into "training," by following a severe health course to keep his body in the very best condition. Sports and games play an important part in hygiene, and it is greatly to be desired that an appreciation of their value in this direction may cause them to take root among all nations.

Sprains.—When one has a sprain, it is understood that the ligaments or tendons of a certain part have been forcibly torn or stretched, whereby a contusion of the articular extremities takes place.

The joints of the hand and foot are generally sprained through a fall, violent pressure, or through being bent the wrong way. The sprained joint is not changed in shape at first, but afterwards it swells (through a secretion coming from the affected blood vessels), and can then only be moved with the greatest pain.

* Rowing, cycling, riding, sleighing and snowballing, cricket, croquet, swimming, are the most popular and useful. So are gymnastics, wrestling, dancing, and playing bowls, as long as they are done out-of-doors.

The treatment requires a quiet, horizontal, and, if possible, a rather high position of the affected limb. In order to lessen pain and avoid a swelling, one should at first apply compresses of from 68° to 72° F., which have been loosely wrung out, and which should be changed as soon as they get hot. When the pain and swelling has somewhat abated, one should apply compresses (which have been well wrung) of 64° to 68° F., and massage the affected articulation twice a day, in the manner indicated on p. 651 and p. 760. The use of a strengthening foot bath (p. 532) may also be recommended in cases of a sprained foot.

Squinting. (See "Eye, Diseases of the.")

Sterilized Milk. (See "Suckling or Nursing Infants.")

Stiff Joints. (See "Joints, Inflammation of the.")

Stiff Neck. (See "Brain and Spinal Cord, Diseases of the.")

Stimulating Treatment. (See Index.)

Stings of Bees are best treated after the removal of the sting itself (which it is best to squeeze out, by a firm pressure of the thumb-nail), first by cooling, and then by exciting compresses. Covering the swelling with damp cold earth is a well-known and effective popular means of cure.

Stomach.—The stomach is a muscular sack of bag-pipe appearance. It lies in the left part of the upper abdominal region, in the so-called epigastric region, and possesses two openings, one the cardiac orifice connected with the gullet (Fig. 402 b), and the other the pyloric orifice (Fig. 402 c), with the duodenum. On its inner surface it is covered with mucous membrane, rich in glands, which consist partly of mucous glands fitted for the smoothing and lubrication of the stomach walls, partly of rather long, sack-like bodies, the peptic glands (Fig. 7 to 9), which, during the process of digestion, secrete a peculiar acid fluid, the gastric juices serviceable for the breaking up and changing of albuminous substances. The glands are embedded in the mucous membrane of the stomach. The apertures by which they communicate with the interior of the stomach are roundish net meshes, arranged in such a manner that every outlet is surrounded as with a ring. Along the sides of the stomach lie the capillary vessels in the form of an outstretched net (Fig. 10). The mucous membrane is covered with an outer muscle membrane, formed of three layers of smooth (involuntary) muscular fibre.

When the stomach pouch is empty it hangs down limply in the abdominal cavity; when laden with food, it gradually turns upwards and forward, until eventually its under edge is altogether in the forefront. The length of the stomach in adults is, on an average, about twelve inches; its measurement transversely, through its widest part, about four to five inches, and it is capable of containing four-and-a-half to five-and-a-half pints of fluid. The other movements of the stomach are very diversified. On receipt of food, the cardiac orifice (Fig. 402 b) and the pylorus (Fig. 402 c) close, the walls con-

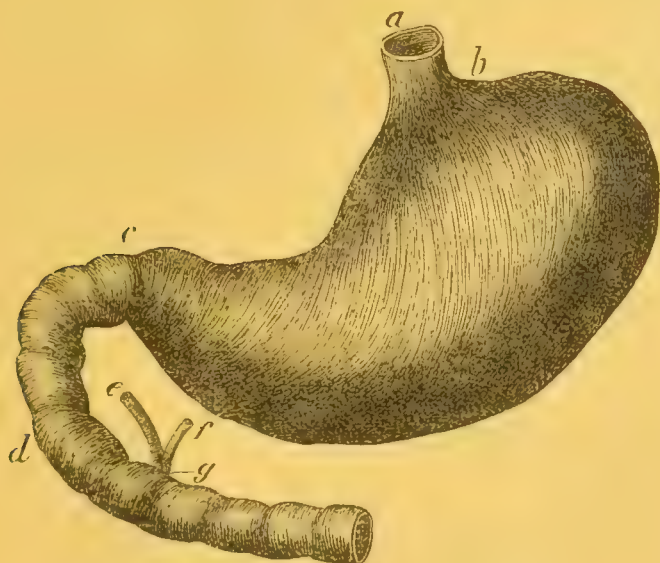


Fig. 402. The Human Stomach.

a. Œsophagus (gullet). b. Cardiac orifice. c. Pylorus. d. Duodenum. e. Bile duct. f. Pancreatic duct. g. Common entrance of the bile and pancreatic ducts into the duodenum.

tract round the contents and set up a rotatory motion, mixing and kneading the whole into one mass, called "chyme." In this manner each part of it comes successively into intimate contact with the stomach, walls and glands, which pour their acid contents into the chyme, and at the same time absorb the remainder. The digestive process in the stomach being over, the chyme is pushed by peristaltic (wormlike) motion through the pylorus and into the duodenum (bowel). To allow of this, the locked, circular pyloric aperture undergoes expansion. The bowel connected with the pylorus is long, and its width proportioned to the thickness of twelve fingers, hence the name (duo-denum), twelve-finger bowel. (Fig. 402 d.) Into it

the bile duct and pancreatic duct enter by one common passage (Fig. 402 g, e, f). The former conducts the bile from the liver, and the latter the pancreatic juice from the pancreas, both important digestive juices—into the duodenum. (Refer further to “Digestion, Organs of.”)

Stomach-ache. (See “Colic.”)

Stomach, Acidity of the, in reference to its uncommonly frequent occurrence, is by far the most important abnormal incident in the process of digestion. It is generally attributable to an unwise choice of food, and acidity is certainly to be placed to the account of a one-sided, farinaceous diet. Disturbed or hindered digestion causes acidity, as the food is delayed in the stomach and transformed into a fermenting mass. Butyric or acetic fermentation then takes place. But acidity of the stomach may also arise in another way, viz., by the introduction of sour material in the form of food (as sour wine, vinegar, etc.) into the stomach. Frequently the attack of acidity is so acute as to cause eructation, and then sour, rancid matter is, in this act, carried far up the gullet and into the mouth (p. 1001). Acidity is pictured in various manners. Many patients describe the sensation as a tight-lacing of the neck, or as a ball coming up from the stomach and stopped short in the throat. Others suffer from intense burning in the gullet and stomach. Sometimes acid water starts into the mouth, frequently acid, rancid, malodorous fluid is vomited. An accompaniment of heartburn is pain in the stomach, extending in all directions towards the back.

The treatment is the same as that prescribed for acute stomach catarrh. In order to neutralise the effect of surplus acidity, half-a-glass of fresh water should be taken every time the burning sensation is felt. The diet should be strictly regulated, and a mixed bill of fare adopted.

In cases where heartburn is the symptom of some accompanying disease, the treatment coincides with that prescribed for that particular disease.

Stomach, Bleeding of the. (See “Blood, Vomiting of.”)

Stomach, Cancer of the.—Like all other cancerous diseases, stomach cancer is consequent upon a cancerous state of the blood, the effects of which are a constant supply of cancerous material to the region of the stomach. Exceptional cases occur before the ages of forty to sixty. Continuous dietetic indulgences, cicatrices from previous

stomach tumours, etc., are influential factors in bringing about an outbreak of this disease.

In point of frequency, fibrous cancers take first place; second in order is medullary cancer. The symptoms are as follows: Coated tongue, want of appetite, acidity, sickness, nausea, a feeling of fulness and pressure in the region of the stomach, especially after eating; vomiting of coffee-coloured masses, constipation, and when the bowels act, thin small stools; diminished quantity and dark-coloured urine, great loss of flesh, withered, yellow-coloured skin throughout the entire body, dejection, etc. The patient's face indicates the well-known cancer physiognomy. On percussion we hear a very light dulness, frequently also a tympanitic palpation discovers a hard, irregular tumour, sometimes in the pit of the stomach, sometimes under it, causing a well-filled stomach to stand prominently forward. The disease lasts from one to two years, and generally has a fatal issue. The treatment consists in a diet similar to that prescribed for chronic stomach catarrh. The patient should also follow the General Strengthening Treatment. Water applications should consist of complete washings at 81.5° to 86° F.; every morning two or three tepid foot baths, or, as substitutes, quick, mild, bed vapour baths (No. 1 or 2), weekly; nightly stimulating body bandages at 77° F., and frequent aperient enemas at 72.5° to 77° F. General body massage and sun baths are also excellent measures for toning up the general health. For alleviating stomach pain, the remedies—with the exception of massage—prescribed for stomach cramp, should be applied.

Stomach Catarrh (Acute); Deranged Stomach; Gastric Fever.—Acute stomach catarrh appears in the human organism both as a self-standing and as a secondary disease, consequent upon some other abnormal transformation.

The causes of acute self-standing stomach catarrh are mostly errors of diet (overloading the stomach on festive occasions), indigestible or insufficiently-chewed food, or its use in either too hot or too cold a form, putrid or irritating substances, bad food (solids or liquid, etc.), colds, injuries, or blows on the region of the stomach caused by external mechanical means. The secondary form of acute catarrh is almost always in feverish and infectious diseases, diseases of the bowels, mouth, and jaw cavity and trachea, bronchial catarrh, lung tuberculosis, etc. The symptoms are as follows: Loss of appetite; dry, heavily-coated tongue; sticky, insipid taste in

the mouth; bad breath; either nausea and disinclination for food, or inordinate desire for sour, spiced, salted meats; intense thirst, eructations, sickness, sometimes vomiting, heart-burn, feeling of pressure and swelling in the stomach region; in many cases, stomach pains; constipation, intermittent with diarrhœa; diminished urinary secretion, sedimentary urine, slight fever, headache, giddiness, general indifference, convulsions in slight form, delirium, and even suicidal tendency, etc. When the fever runs very high, gastric fever is the term applied. This is generally attended by herpetic eruptions on the skin. Acute stomach catarrh may last for several hours, days, or even weeks.

The treatment consists in a suitable scanty diet; but no hard and fast rule may be set down, as the tastes, habits, and especially the individual constitution, have much to do in the matter. Should the catarrh be the result of festive overloading, the uvula and throat should be tickled with a feather, or the throat gargled with lukewarm water, in order to induce vomiting. This should be done in any case when putrid matter is supposed to be hindering the stomach in the performance of its normal functions. In the intervening pauses the patient should sip water at 59° to 62.5° F., to which either a squeeze of lemon or raspberry juice has been added. Thick stimulating bandages, at 77° to 81.5° F., should be placed on the stomach and under it, and renewed every two to three hours. Further commendable measures are aperient enemas, followed by small, cold ones; also stomach massage (No. 2 and 3 Grip). Gastric fever makes the Fever Treatment described in II., Section VI., absolutely essential. For secondary, acute stomach catarrh, the fundamental disease treatment is the specific one.

Stomach, Catarrh of the (Chronic).—Chronic stomach catarrh appears in a secondary form, consequent on neglected, wrongly-treated, or oft-repeated acute attacks, and is also seen as a primary or self-standing disease. It belongs to the stubborn ailments that frequently afflict mankind. It is sometimes met with as the complicated result of tumorous and cancerous conditions; or, in diseases of the other organs — bowel, liver, heart and lungs — in green sickness, poverty of blood, or circulation disturbances, particularly those of a digestive character. Among the original causes may be named continuous and excessive use of spirits or drugs. Its complex symptoms are similar to those of the

acute form. To the theorist may be left the tantalising task of curing chronic catarrh by treating its symptoms with drugs, the practical man will always seek to combat the prevailing symptoms by regulating the diet (Wiel). Chief among its symptoms are, loss of appetite intermittent with ravenous hunger; acidity, vomiting mucus on drinking when the stomach is in an empty condition; feeling of pressure in the region of the stomach, coated tongue, sticky taste in the mouth, bad breath, eructations, constipation, etc. In long-standing cases of catarrh, serious digestive disturbances take place. Chronic stomach catarrh for the most part runs its course through many years, its intensity being subject to many fluctuations.

The treatment requires, in the first instance, a very strict diet. Highly-spiced, or salted, sour, fat, indigestible foods, or those causing flatulence, ought to be avoided. Total abstinence from spirituous liquors is unconditionally enjoined. If one must sit at the drinking board, he may enjoy his glass of pure and unadulterated fruit wine, or, when this goes against the grain, a natural seltzer mixed with raspberry juice. Meals should be taken frequently during the day, but always with proportionate diminution in quantity. Thick soups, or oatmeal, barley, sago, millet, maize, rice, etc., made with milk, sweet or sour; or buttermilk, almond milk, peas, beans, lentils, prepared in manner prescribed on p. 17; young vegetables, as spinach, cauliflower, asparagus, green peas or beans, carrots, red cabbage, etc.; green salads in lemon juice and olive oil dressing, stewed fruit, stale rolls, biscuit; gently boiled, light animal food, etc., are the main items on the bill of fare. Water applications should be daily trunk baths at 81.5° to 86° F., or sitz baths of same temperature; nightly stimulating body and calf packs at 77° to 81.5° F.; a bed vapour bath (Nos. 1 to 3) once or twice weekly, or, instead, tepid full baths. In summer, air, light, and sun baths should be supplemented to these. Massage is an important curative, and when carried out in the manner described on p. 678 once, or when daily, from one-and-a-half to two hours should elapse between a full meal and its application. Finally, the patient should persevere in the General Strengthening Treatment.

Stomach Cramp. — Stomach cramp is the symptom of some further disease of the organism, and is mostly caused by reflex action of the nerves. Its fundamental causes are mostly diseases of the brain and spinal cord (neurasthenia,

neuralgia, hysteria, hypochondriasis, etc.), and of the organs situated in the abdominal cavity, such as the liver, spleen, bladder, kidneys; also by women's diseases, green sickness, poverty of blood, general debility, etc. The pain is cramped, cutting, and piercing. Pressure on the region of the stomach generally diminishes it. The duration of single attacks is subject to many fluctuations, lasting from several minutes to several hours. The cramp is most frequently brought on by physical over-exertion, mental excitement, errors in diet, menstruation, etc., and is accompanied by such signs as anxious fears, outbursts of perspiration, cold and pale appearance of the whole surface of the body, cold hands and feet, convulsions, etc. The treatment must be directed to the removal of the fundamental cause. Commendable palliative measures are, either vapour compresses applied to the region of the stomach from three to six times in succession, changing them in every nine to ten minutes, or sitz baths of temperature increasing from 95° to $106\cdot26$ F., lasting from ten to fifteen minutes; or mild massage (p. 678), together with abdominal massage (Grip 1). An aperient enema, together with a subsequent small cold one, should be given after an attack, and, in a few hours afterwards, stimulating body bandages at 77° to $81\cdot5^{\circ}$ F. applied.

Stomach Derangement (Nervous). — Nervous stomach derangement is an exceedingly common complaint. It is never a self-standing disease, but always subordinate to some further diseased condition of the organism, as neuralgia, hysteria, hypochondriasis, green sickness, anæmia; drug, alcoholic, and nicotine poisoning, diseases of the bowels and kidneys, etc. Its complex symptoms are many-sided, and subject to continual fluctuation, both in form and intensity. The patient may eat a hearty meal to-day, and to-morrow have no appetite at all. He may sit down to dinner ravenously hungry, and find that a mouthful or two has been sufficient to satisfy his ardent desire for food; or he may have a hearty appetite to-day, and, on satisfying its cravings, rejoice in the strength of a cannibal, while next day a few spoonfuls of soup will be enough to give him most violent stomach pains. Want of appetite, changing to inordinate hunger; constipation to-day, diarrhœa to-morrow; sometimes a clean, sometimes a foul tongue; headache, specks before the eyes, flow of blood to the head, cold extremities, sleeplessness, functional derangements, etc., all make up the

clinical picture. As the stomach is never the original cause of the trouble, although always held guilty by the patient, as frequently also by the physician, a most careful choice of foods is absolutely requisite for the alleviation of the attendant discomforts. But when rules and food limits are laid down for ailments, and applied to inappropriate cases, the patient loses flesh, becomes weak, debilitated, and finally bedridden. It would be so in this case, and care must be exercised that the stomach be not treated over much. The more it is operated upon the more damage accrues to the original trouble, and that, for the most part, consists in a total derangement of the nervous system.

The treatment must exclusively be applied to the fundamental cause. It consists in strictly following out the prescriptions for the General Strengthening Treatment, as also for hypochondriasis and hysteria. The patient should eat and drink as fancy dictates, take as much open-air exercise as his strength will allow, and give up fruitless interference with his stomach. This is all right, but his nerves, or some other part of his organism, have become deranged.

Stomach, Disordered. (See "Stomach Catarrh, Acute.")

Stomach, Distension of the. — Stomach distension represents a form of disease in which the stomach is incapable of resuming its normal power of contraction. It therefore remains in a chronic condition of distension, and the chyme oozes either slowly or imperfectly into the duodenum. As a self-standing disease it is brought on by contraction of the pylorus, which again has been influenced by conditions of cancerous overgrowth; sometimes, though rarely, through inflammatory swelling, or pure hypertrophy, or from tumours in the adjacent organs. A further cause of distension lies in continually overloading the stomach with nutritive substances. It is also frequently the sequel to brain and spinal affections, green sickness, typhus, lying-in fever, lung tuberculosis, liver diseases, inflammation of the kidneys, diabetes, etc. The symptoms of pending stomach distension are, loss of appetite, varied with ravenous hunger; increased thirst; vomiting of either liquid, or pulpy, sour, rancid, or sweet-smelling matter in the afternoon, generally a few hours after dinner, and sometimes continuing from three to four days in succession; eructations, acidity, hiccough, excretions in small quantities and of costive appearance, diminished urinary

secretion, puffy sensation with pressure in the stomach region, headache, palpitation, want of breath, frequent fits of fainting and cramp. Auscultation in many cases discloses crackling sounds, and frequently, when the patient is given some water to drink during the examination, a peculiar splashing noise in the stomach. The percussion sound depends on the patient's position and the contents of the stomach, and thus is very diversified. Should percussion be tried (the patient lying on his back) on an almost empty stomach, the sound is a dull tympanitic one; and in an upright position, when the liquids sink downwards, a dulness is noticed. Percussion is therefore not of much value. On the other hand, examination gives us something tangible, viz., chiefly prominent arching of the region of the stomach above the navel, whilst the under-half seems to be fallen in. In severe distension, swelling of the whole stomach is frequently noticed, so that its motions may be distinctly felt, and even its circumference made out. Palpation, in many cases, diagnoses a kind of fluctuation, a sound as of the dashing of waves. On shaking the stomach up and down, an extraordinarily loud splashing noise is heard. By the same measure, a sensation is felt similar to that of pressure against an air-filled cushion. When the touch of the finger distinguishes this as far as the navel and below it, there can be no doubt whatever about the certainty of stomach distension. In a long-standing case of distension, displacement of the chest and abdominal organs, as the lungs, liver, spleen etc., takes place, and the normal functions of the heart are imperfectly carried out. The disease is, for the most part, very tedious, even when cleverly treated, lasting from two to three years before thoroughly cured.

The treatment must in the first place be directed to the removal of the fundamental cause. Besides, a strict diet is requisite, consisting chiefly of dry, easily-digested substances. Meals should be frequent and small in quantity, after each of which the patient should rest awhile. As to water applications, sitz baths commend themselves, at temperature ranging from 86° to 90.5° F., or trunk baths at 81.5° to 86° F., two or three times a day, in duration of from ten to fifteen minutes; also frequent aperient enemas at 77° to 72.5° F., together with subsequent small cold ones at 62.5° to 68° F., and nightly stimulating body and calf packs at 72.5° to 77° F. Bed vapour baths, No. 2 or 3, should be taken weekly, and when stomach boils or cancer offer no veto, stomach massage should be

applied once or twice daily, together with subsequent hygienic, gymnastic, passive movements (Figs. 199 to 207). One should not neglect to well move the stomach during the application of the massage.

Stomach, Inflammation of the. — Inflammation of the stomach is generally accompanied by mattery formation, and appears as a primary (self-standing) or secondary (consequential) disease arising from the use of corrosive poisons. The causes of primary suppurating inflammation are, for the most part, dietetic excesses, colds, stomach injuries, etc.; those of the second form are, inflammation of the peritoneum, abdominal typhus, smallpox, lying-in fever, pyæmia, etc. The symptoms of suppurating inflammation are very violent pains in the stomach, eructations, vomiting of matter and mucus, coated tongue, abnormal thirst, constipation varied with diarrhœa, etc. The clinical picture of suppurative stomach inflammation is similar to that of a severe peritonitis or typhus case. The fever height fluctuates between 104° and 106° F., the pulse is low and weak, and death takes place in the course of a few hours or days. Stomach inflammation arising from corrosive poisoning is characterised by frightful burning and pain in the region of the stomach, increasing on the slightest touch. At the same time the cardiac orifice, gullet, and lower regions generally participate in the same. Further symptoms are, low, weak, nearly imperceptible pulse; cool, moist, clammy, sweating skin; affections of the brain, vomiting of blood-tinctured fluid, blood-mixed diarrhœa, etc. This condition generally winds up with severe peritonitis.

In cases of severe poisoning death generally takes place in a few hours. Slighter cases, which, however, are exceptional, gradually attain a state of complete restoration, through a stage of scab-formation and eventual falling off of the same.

The treatment of secondary, festering stomach inflammation corresponds to that of the fundamental cause; the primary should be treated according to the prescription given for acute stomach catarrh. Stomach inflammation caused by corrosive poisoning requires either neutralisation or dispersion of the poisoning. In the case of concentrated acids, the patient should swallow powdered chalk; in the case of alkalies, sour wine, lemon juice either pure or mixed with water, or vinegar mixed with water. When ethereal oils are the subject of treatment, tickling the uvula with a feather, in order to induce vomiting, is best. Should this not have the desired

effect, and no stomach pump be at hand, the patient should drink a large quantity of warm milk, soups, etc., in view of diminishing the poison proportion. (Refer further to article on "Poisoning.") When all danger of imminent death is over, the prescriptions given for acute stomach catarrh should be used for the removal of any remaining slighter symptoms.

Stomach Massage. (See Index.)

Stomach Pains.—Stomach pain is no self-standing disease, but always the symptom of a disease of the stomach itself, or some other dependent ailment, which is set up in reflex manner, and through the medium of the nerves, and attains the form of veritable stomach pains.

The treatment of stomach pains coincides with that of the fundamental cause. (Refer to article on "Stomach Cramp.")

Stomach, Ulceration of the.—Two forms of stomach ulcers are distinguished — catarrhal and perforating (round, chronic, penetrating). The rarest of these two are catarrhal ulcers. They are either formed after the fashion of deep-seated follicular ulcers, or of flat-spreading erosions (perforations). Catarrhal ulcers are very seldom known to bleed. Perforating, that form the great majority of ulcers, are in almost every case found to bleed because they go much further down into the stomach walls, whose largest blood vessels they disturb, causing them to bleed. The causes of either form lie partly in some further general disease, partly in injurious habits, such as constant use of either too hot or too cold foods or drinks, the hasty swallowing of food without due mastication, etc. Their recognition is not such an easy matter as it would superficially appear. Frequently ulcers may be present in the stomach for a life-time without giving any indications of their actual presence. Very often healed-up ulcers, which were altogether painless in life, have been found after death. Chronic ulcers occur in females more frequently than males, and usually in middle life, and may be recognised when the patient presents a case of long-standing stomach catarrh, suddenly bringing up blood, or when the excretions are dark and tinted with blood, a further sign being the presence of blood.

The chief symptom of ulceration is pains in the region of the stomach. They are characterised as piercing, cutting, stinging, burning, and increase in intensity on the reception of food. They extend for the most part to the lower part of the abdomen, and upwards towards the back and chest. The

most frequent seat is in the vicinity of the pylorus or the right side of the posterior stomach wall. Change of posture therefore occasions numerous pain variations. A feeling of pressure is generally present in the region of the stomach, which frequently disappears on reception of food. A further symptom is frequent vomiting of mucus, mostly during an empty state of the stomach. An exceedingly characteristic one is the already mentioned bleeding. Such circumstances as mental excitement, physical over-exertion, an error in diet (overloading the stomach), etc., will cause the sufferer to faint. Dark specks appear before his eyes, the stomach temperature increases, and vomiting and bleeding follow. After this he is left in a state of languor and weakness. Symptoms of want of blood in the brain (see this) appear. But the general condition, after bleeding has taken place, depends more or less on the patient's constitution. Sometimes the effects are very severe. Many patients suffer from salivary troubles, loss of appetite, sleeplessness, dejection, constipation, etc. The appearance of the tongue offers no real diagnostic sign, as it is sometimes clean, sometimes covered. With regard to duration, it is subject to many fluctuations, but it requires a very considerable amount of time to effect a thorough cure, and this accomplished, the patient is liable to be seized with the disease again.

The disease might be fatal in a neglected or wrongly treated case. The circular ulcer then penetrates the stomach walls, and violent inflammation of the peritoneum follows; or should it penetrate into the chest cavity, the same affection of the pleura takes place, and either case is attended with a fatal result.

The treatment for bleeding ulcers is similar to that for hæmatemesis see "Blood Vomiting." The patient should continue in the horizontal position as much as possible, and most advantageously in bed. The dietary must be strictly enforced, the nourishment consisting mainly of fluids. When sweet, uncooked milk agrees with the patient, he should drink it fresh, and at its normal temperature. Sour or almond milk are also highly effective. Finally, nourishment may be administered in the form of so-called nutrient enemata. Further, he may use oatmeal, sago, or barley gruel; tenderly cooked rice, milk soups; young, tender, thoroughly cooked vegetables; apple pulp, beaten up plum pulp, lemon squash, etc., with perfect safety.

Water applications are, sitz-baths at 83.75° to 88.25° F., lasting from ten to twenty minutes, taken two or three times a day; and nightly stimulating body bandages at 77° to 81.5° F., together with stimulating calf packs at 72.5° to 77° F. Two or three aperient enemata at 72.5° to 77° F., together with subsequent small, cold ones at 62.5° to 68° F., may be taken daily with advantage. Stomach massage is dangerous, and should not in any case be applied.

As palliatives for intense pain, vapour compresses, Malten's vapour douches (Fig. 133), or hot sitz baths increasing from 95° to 106.25° F., should be made use of.

Stone. (See "Bladder, Stone in the; Gallstones; Kidneys, Stone in the.")

Strabismus. (See "Squinting," "Eye Diseases.")

Strawberries are, on account of their aroma and their pleasant taste, a favourite and very refreshing fruit, which, when partaken of in moderation, are also very easily digested. Besides their pleasant aroma, strawberries contain citric acid, and a "strawberry treatment" has often proved very effective in cases of gout, stone in the bladder, kidney troubles, worms in the intestines, etc. Many people, after eating strawberries, get a slight eruption on the skin (nettle-rash), which is one of the best proofs of the wholesome influence of this fruit, which causes the excretion through the skin of any disease-matter that may be in the system. In cases of fever, strawberries squeezed in water make a cooling and refreshing beverage. Taken in milk they are not so digestible as when eaten raw or sprinkled with sugar. A very wholesome and delightful tasting tea can be made from the dried leaves of the wild strawberry. The leaves are best picked in the early morning, because at this time the plants are most full of sap.*

* The months of May and June are the best in which to collect the leaves. One would do well at the same time to collect young blackberry leaves and young wood-roof leaves, and to dry them in the same way as the strawberry leaves. Then from the mixture of these three different kinds of leaves one can produce a drink which is not at all inferior either in taste or aroma to Chinese tea, and which has the further advantage of being cheap, non-exciting, and not in the least dangerous, and unadulterated. "Young blackberry leaves possess," writes the botanist, Dr. Kuntze, "the same taste as pure, good Chinese tea, and a better taste than most of the kinds of tea dealt with in the European market. As I have drunk a quantity of good tea in Eastern Asia, and have myself plucked the

When the leaves are plucked, they must be placed to dry in a shady spot, not in the sun, and then they must be put away for use in a closed jar. In order to make about six cups of tea, one should use as much as can be taken up with the tips of the fingers of one hand. On this full boiling water is poured, and it is left to draw for fully five or ten minutes. If one adds to this tea a little sugar, but no milk, a most pleasant tasting drink is produced that can exercise no kind of injurious influence upon the health, such as is exercised by most other kinds of tea.

Strengthening Treatment, General. (See Index.)

Stuttering is the term applied to the incapacity of beginning to speak, or to continue doing so fluently without any defect of the organs used in speaking — lips, tongue, throat or lungs. This absence of any tangible defect in the organs of speech, and the occasional appearance of the impediment, constitute the peculiar distinction between stuttering and other impediments — stammering, lisping, etc. While the stutterer at one time speaks fluently and without hesitation, at another, only with considerable trouble, other sufferers from impediment in the speech, whenever they “lift up their voices,” always produce the same mangling of speech. The question, “What is the cause of stuttering?” has not been satisfactorily answered so far, although the number of medical investigators who think they have solved the matter is by no means small. From research it appears that the cause of the disorder lies partly in the muscles of the tongue, in the nervous system, the lungs, the brain, partly even in the blood. From the authors who have a certain theory about it I quote the following. Coën, a famous and experienced authority on speech, expresses this opinion on the subject: “The view taken by the majority of writers, that stuttering arises from unrhythmical and dissimilar respirations, is only partially correct; the irregular respiration is certainly there, and causes stuttering, but this is only in casual connection with the pressure of air in the lungs, and

young tea leaves from the shrub and chewed them, one may perhaps take my judgment on the matter. I promised a Society of learned friends in Berlin to let them taste two of the finest kinds of tea. Without letting them know which was which, I first handed them my blackberry decoction, and afterwards the genuine tea, and asked their opinion. The unanimous verdict was in favour of the former of the two, that is to say, of the substitute, and only after they had given their opinion did I explain the truth to my friends.”

this condition is the original pathological cause that impedes the speech." Prof. Kussmaul contradicts this in his work, "Impediments of the Speech," as follows: "If the circumstances are closely examined which, in stuttering, prevent the enunciation, we find that the co-operative muscular movements are not in perfect accord (muscular inco-ordination). The regulating machinery of the nervous centre, which brings about the harmonious play of these muscles when the voice is produced, is put out of order by very trifling peripheric, or more frequently, central irregularities. Part of the muscles do not adapt themselves properly either to the force or the length of the contraction, consequently the stream of air necessary in speaking lacks the necessary tension requisite to overcome the resistance of the opposing muscles. Thus the respiration does sometimes take place, and sometimes the tension of the muscles is convulsively impeded. Instead of the contraction of the muscles being properly done, at the proper time, it is done under the guise of tonic or clonic cramp."

Kussmaul declares stuttering to be "a disturbed concord in muscular action, wrought by abnormal nervous influences," the muscular action being requisite in the formation of loud and articulate speech, and the harmony disturbed by cramp, which again is the result of that abnormal nervous influence. Later on, he calls stuttering "a spasmodic co-ordination of the nerves." By other medical authorities stuttering is considered a convulsive state of the vocal cords, as a partial St. Vitus' Dance, as a weakness of the vocal functions, as a reflex cramp.

To this divergence of opinion as to the actual causes of stuttering may be attributed the existence of the many systems for the cure of stuttering. Earlier efforts to cure it by an operation, or by taking drugs, could not be successful, since the opinion that the disorder arose from an organic defect was a mistake. And the system now in vogue, and which is principally didactic, is one in which the pupil is taught a certain mode of speech founded on fixed rules, that he may bring about a normal activity of the muscles of the throat and breathing organs by constant repetition in reading and speaking, is also, in many respects, unsuccessful, as the treatment of the physical cause of the disorder is not sufficiently kept in view. Whoever will test the theories advanced respecting the fundamental cause of stuttering, and has an

opportunity of observing stuttering for any length of time, will hardly be able to deny that not only a disturbance of the respiratory organs exists, but that brain and nerves participate in bringing about stuttering.

Stuttering is undoubtedly caused by a temporary disturbance of the nervous influence upon the muscles used in speaking. As this disturbance arises from the nerve centre, the brain, a consequence of the quantity of blood contained in it being changed, any treatment of stuttering by a restoration of regular respiration must not lose sight of the psychical nature of the disorder, i.e., efforts must be made to restore the mental balance in speaking. I cannot take up the space in this book for a detailed description of the symptoms of the disorder, and its varied forms, nor for laying down directions for its relief, but I will just say, as regards the latter, that regular practice of the "Breathing Exercises" will do much to restore the regular breathing powers. The air in the lungs is first exhaled, and after the inspiration a slight pause is made, long enough to count five. The patient must make no counter movement. In the same way rhythmic, or punctuated speech exercises, may be practised, with a great variety of deep and short breaths, keeping up the short pauses. Exhalation (letting out the air) must never ensue before the previously-inhaled air has been used up. The psychical nature of the disorder must be combated by the influence of the physician upon the patient. As regards age, the young are generally the sufferers from stuttering. A long time is required for the cure, which should be entrusted to an experienced and tried physician. The treatment of stuttering, most annoying of all impediments of the speech, requires great sacrifice on the part of the doctor. It is no small task to convert a shy, feeble-minded stutterer into a self-respecting and useful member of society.

Sty in the Eye. (See "Eye Diseases.")

Sty on the Edges of the Eyelid. (See article on, p. 1025.)

Styptic. (See "Bleeding.")

Suckling, or Nursing Infants.—One of the most important subjects in hygiene is undoubtedly the care of infants, the more so, because statistics prove the sad fact that mortality in the first year is tremendous, and of this again the greatest number belongs to the first half-year. Hardly have they crossed life's threshold when the lives of

these babes are cut short. How much rejoicing and gladness are hushed by these early deaths; how many a hope is yearly buried. It is a frightful fact that two hundred out of every thousand children die before they are a year old, general mortality being something like twenty-five in a thousand. The point of the question, "How can we prevent this sacrifice of the innocents?" lies in the hygienic as well as social conditions in which the babe is fed, nursed and provided for.

Wholesome food, pure air, sensible clothing and bedding, healthy home and rational care of his skin, are the main necessities for the welfare of the little stranger, and yet how often are they lacking—partly through carelessness and want of experience, and partly through poverty. Let us glance into a poor man's home, and we shall very soon comprehend the rapid extinction of these tender child-lives. The limited space does not even permit the entrance of light and air. Every dweller in these badly-ventilated and badly-lighted rooms presses close against another; the mother has no time to attend to her child regularly, and it is left to the tender mercies of a small brother or sister, or to an unscrupulous stranger. Soon the struggle for existence claims its victim in the first weeks of its life, and if by any chance the little body retains its hold on existence, we see in him later all the signs of anæmia, scrofula, and weak constitution. Let us leave this sad topic, this peering into social misery and conditions, whose removal would solve part of the social question; let us return to our own subject, the rational care of infants.

First, as to the food of infants. It is well known that it is not only best for the child, but also for the mother, to suckle her babe herself if she is able to do so, and there is no impediment in the way of defective milk supply, or abnormal form or power in the nipples, or constitutional illness. The babe should be laid on the mother's breast as soon as she awakens from the first sleep following its birth, and it has also had a sleep after its bath. Camomile or fennel tea, so often given to infants, is quite superfluous. If the milk has not come, or if the child is not disposed to take any, it may be left to sleep for two or three hours, and then put to the breast again. If at first it gets but little milk it does not matter. If this lasts too long, however, it may have a little sweetened fennel tea, or a mixture of milk or cream with three parts water. The mother should only give one breast at a time. Let that be exhausted, and then

give the other, and so on in turn. An important question is, "How often shall the child have the breast?" Learned and unlearned people have been trying for a long time to prove that a certain regularity should be observed as to meals if the child is to flourish aright. Some say the child should be fed every three hours; others say about two or two-and-a-half hours, for the first two months, and it is universally accepted that the intervals should be about two hours, to ensure the maintenance of the child's health. We are also told the babe should never be roused from sleep for the sake of feeding, and that a long night interval should be imposed, so that if it is nursed at 9 or 10 o'clock, or the last time at night, nothing more should be given until 5 or 6 o'clock the next morning.

Assuredly a certain punctuality in its meals, provided it will allow of it, is good for the child and convenient for the mother. Yet it hurts neither mother nor child if it is nursed at irregular intervals of day and night. If a healthy child cries, and it has been ascertained that neither discomfort nor pressure is the reason of its tears, the mother should give it the breast to comfort it, and prevent its crying any more, although she may have learned from nurses and other good people that the child "will stop crying of itself as soon as it understands it is no good." The mother may in such cases give the child the breast, even if it brings the milk up again, and she may do so again in future.

The sickness, unless accompanied by some other symptom, is by no means a bad sign. To keep up a certain regularity in the child's meals in case of serious illness, such as diarrhœa, would be right, for then the child's digestion is already out of order, and extra food would make it worse. If the suckling is successful may be seen by the child's nose. A plentiful flow of urine is a sure sign of an increasingly favourable condition. The mother's diet should be very low and digestible, but nourishing. She must avoid highly-spiced and flavoured food, and such as she knows by experience does not suit her, but she should take whatever she is accustomed to and can digest. And she should follow her ordinary avocations as much as possible. If she cannot give up her beer, she should only take mild "home-brewed," none containing carbonic acid or alcohol (p. 33). Another important question is, "How long shall the child take the breast?" Under ordinary circumstances the mother should

give it for seven or nine months, as its sole nourishment. There is no injury to mother or child entailed in her giving it as long as the milk lasts.*

From the seventh to the ninth month it may have a little supplementary food, the nature of which will be shown further on. The weaning must be gradual, and never abrupt and sudden. In some places there is a mania for weaning a child in one day, and this is done by the mother's going quite away from the child's presence. It is perfectly horrible! It is heartbreaking to hear the poor forsaken child's pitiful crying. It goes on night and day, until the poor little thing has lost its voice. Or else it grows thin in longing for its former nurse, and loses its appetite entirely. It is gradually weaned from the breast by taking equal parts of milk and water, or pure thin oatmeal gruel made from coarse, not bitter oatmeal, boiled without either sugar or salt, or this and milk in equal proportions, or a thin bread or biscuit sop mixed with a little milk as well as the breast; the additional food is gradually increased, is given oftener and the breast less frequently, until at the end of four or six weeks it has it no more. A child should never be weaned in hot summer weather (when diarrhœa is frequent), or during teething. The mother's milk, the child's only natural food, conduces to the regular course of the teething, as it helps in making bone. Neither cow's nor any other milk contains so much nourishment as the mother's. I would urge upon the mother the importance of keeping the breast thoroughly clean, and to wipe the child's mouth after every meal with a cool wet linen rag.

But if the child cannot have its mother's milk, nature's own provision, in consequence of deficient supply, or its mother's illness—for neglect of this sacred duty for the sake of society, or prejudice, is nothing short of a crime—a wet

* The "Natural Treatment" physician, Dr. Theodor Hahn, in his "Practical Handbook of the Natural Curative Treatment," says: "As a rule, six or nine months, or even a year, is the term generally specified for weaning and taking more solid food, and, as a reason, the cutting of the teeth is given. But sufficient teeth to masticate with do not come until the child is one-and-a-half or two years old, and if the mother is healthy, and has a good supply of milk, she should let it suckle up till then. Nature proves this, and there are countries where children remain at the breast until their third or fourth year. Two pairs of molars show the time when the child may give up its milk diet for more solid food."

nurse should be substituted; but if this again is impossible, it must be artificially fed. It is best not to be too anxious about it too soon after the birth, for a new-born babe requires very little nourishment. It often happens that the supply, at first very limited, is greatly increased in three or four days' time. The contrary may also be the case. At first there may be abundance, but it does not increase in proportion to the child's needs; or it does not assimilate, and the child does not thrive properly, i. e., increase in weight. In this case, just the same as if there were no milk at all, the deficiency must be made up. That is extremely difficult, as no food makes up for the mother's milk. The next best thing is milk from a mammal whose supply is accessible. Asses' milk is the very best, but this cannot be reckoned upon for many reasons. The ass is not quite suitable for the milk business, and she is, on the whole, rather rare. So recourse must be had to the next best, and that is cow's milk. This is thicker, and contains less sugar, and must be diluted and sweetened, the first by water and the other with sugar. But errors arise, one of which is adding too little water. Professor Leopold's (Director of the Royal Clinical School for Women, Dresden) instructions may be safely taken for a guide: "The first three days, one part milk three parts water; in the ensuing weeks, one milk to two water; and then, from the fourth month, equal parts; after six months, pure milk." These may be modified according to circumstances, but at any rate pure milk is the right food at the end of the first year. These are tested proportions which are proved to be the best, and which best tide over the troubles of the hot season, signified by diarrhœa. An indispensable condition is pure milk, absolutely pure milk, and, unfortunately, cow's milk is not always so. (See "Milk.") And this fault in the milk is the principal cause of the enormous mortality of infants in the summer. It is not merely turning sour which happens so often, but other conditions, all causing diarrhœa. Investigation has recently proved that in the transformation of the elements "toxin" is introduced, which has poisonous effects. (See "Albuminates" and "Poisons.") But fermentation sets up generally in the child's stomach, causing sickness and diarrhœa. Diminution of its strength results, followed by attenuation, general debility, and weakness of the heart. To save the child from poisoning by the noxious particles possibly present in

milk, it has become the fashion to sterilize it, that is, free it from germs. Machinery adapted to the purpose is constructed, but not any that renders the milk perfectly pure or fit for the nourishment of infants. However ideal the sterilizer of milk may be from a bacteriologist's point of view, we must not forget that a prolonged heating of the milk not only destroys bacteria but spoils the milk itself. The colour, distribution of fatty particles, and the taste, all suffer. We must also bear in mind that clearing the milk of germs, from a scientific point of view, is not the same as from a practical view. In scientific circles opinion has undergone some modification as to sterilization, for it is accepted that simply boiling the milk destroys the germs sufficiently for everyday use. But this experiment again proves that boiling the milk renders it less digestible. So, after all, it is best to give the child good unboiled milk, properly diluted with water and sweetened with sugar.*

* Louis Kuhne says on this point: "Nothing can precisely replace the mother's milk, not even cow's milk. But as many mothers have to avail themselves of artificial food for their children, owing to present conditions of life, I must say, after the experience of long years, that in my opinion there is no suitable substitute. I consider that all "Infants' Foods," "Extracts," etc., should be avoided, for they upset the child's digestion and injure its health. Children's illnesses are generally the result of too much food or too little. The most popular substitutes are boiled dairy milk or sterilized milk. In my opinion boiling the milk, as is now done, is injurious to the child. Does any other mother, in nature's entire range, provide boiled milk for her young? Human beings alone are obliged to boil and sterilize the milk before giving it to their children, because they are frightened by the medical theories about bacilli. Is nature in error as regards the rising generation, or are all imperfections and shortcomings not to be sought on the other side? The mother's milk is her child's only proper food, administered direct from the breast, unspoiled by contact with the air. As soon as milk, no matter what its origin, is exposed to the air, a change, decomposition, ensues in its elements, that may not be perceptible, but, for all that, does occur. Milk exposed to the air becomes less digestible, but does not suffer so much as boiled milk. Boiling and sterilization of the milk prevents it being digested, and therefore is not advisable for delicate children. This may easily be proved. Digestion in any body is the transformation of food into tissue. Any process that is opposed to the decomposition or fermentation of food, rendering it hard and incapable of decomposition, prevents its digestion. By boiling and sterilization milk is rendered more durable, more difficult to ferment, more difficult of digestion, for everyone knows that boiling milk prevents its turning sour. But turning sour is the first stage of decomposition. It is true that bacilli are destroyed by boiling,

The temperature of a child's food should be 92° to 95° F., or between 110° to 112° F. Test it with a thermometer, but not by tasting it, and certainly not by merely feeling the bottle. During hot weather remember that hunger is less and the thirst greater. Dilute the milk rather more, and if the child is still thirsty, give it a little sugar and water (warm) until it is satisfied. A child whose thirst is assuaged by precisely the same mixture as in cooler weather overloads his digestive organs, and the consequence is diarrhœa. Many mothers know this, and are careful not to fill the bottle too much. But they forget that the child's increased thirst requires

but so, to a certain extent, is the whole milk. The bacilli, however, are merely transformed, their appearance is altered, but the milk is so much changed that it is less suitable for food than unboiled raw milk. Sound digestion at once destroys all injurious miasma and bacilli in the stomach. So it is imperative to give children the most digestible food possible. In hundreds of cases I have found a decoction of oats made from good, coarse, not bitter groats, cooked in water without either sugar or salt, then rubbed through a sieve and given to the child at a suitable temperature, preferable to cow's milk. The addition of a little unboiled milk suits some children better. But if milk is used, it should be diluted with water and not boiled. Just as errors of diet or of living are injurious to a nursing mother, a cow may be equally affected. If we could rely upon really wholesome cow's milk, their milk would not be a bad substitute. But, unfortunately, in our highly civilized generation, the perpetual feeding in the stalls and overfeeding of the cows sets up a condition far removed from health, and the milk of a sickly cow is no advisable substitute for mother's milk, as it may convey the disease to the child. The best test of milk is supplied by our olfactory nerves. Any milk having the least unpleasant smell is bad, and must not be given to the child on any account whatever. I have noticed throughout my practice that children fed on boiled or sterilized milk very soon grow thin, their heads are too large and their limbs are shrunken, clear signs of disturbed digestion. When once they have passed infancy, rice, groats, cornflour or sop, prepared as above, may be given to children, and now and again grated apple. As soon as a child can chew it, give him some dry, good Graham bread. The mother at first should chew it a little. This is a country fashion, very natural, and therefore advisable. Sugar, chocolate, and other sweets, salt, and all "extracts," in any great quantity, are very bad for children; they injure children's digestive organs by working them unnecessarily, and bring on sicknesses. Over-feeding is very bad, much worse than letting a child be hungry once in a way. It is a great mistake to give a child food unless he is hungry, and this he should be every two hours. If he wants food oftener there is something wrong. A healthy child needs no food in the night. It is quite certain healthy children will help in regulating their own need for food in a very unmistakable manner.

more water, and if it does not get it, fever and cramp may result, that is, with artificially-fed children. The proportion of water in mother's milk, thanks to nature, balances the child's thirst in a wonderful way. How many a child's life, sacrificed in the heat of summer, might be saved, if the mother nursed it, and nursed it as long as she ought. That bottles and indiarubber teats, after long use, must be kept scrupulously clean, to prevent any secretions being left on them, needs no argument. Additions of flour, and any mixture containing flour instead of milk, must not be given under six months. Children do not thrive on "Infants' Food." It spoils the digestion, and brings on rachitis (rickets). It is the right time to warn ignorant nurses against offering a child, by way of "amusement," or with a "useful purpose," a "comforter," or rattle that has been soaked in milk or sugar and water, or filled with biscuit or sugar. On hot days the thing gets sour, and makes the poor little mouth horribly sticky. But if they seize them quickly, and put them to their mouths, well—teach them better. Anyone who has noticed in any recreation ground how many children have one of these things in their mouths, and how often it falls on the ground into all sorts of dirt, and is then roughly cleansed and pushed into the poor little thing's mouth, must have a dislike to these arrangements. When a child is satisfied, is dry, and not irritated by folds and pricked by pins, it may be safely allowed to scream a little if the mother's breast is not sufficient consolation. Crying won't hurt a child, but a sour "comforter" will.

A very appreciable cause of infant mortality is defect in clothing and bedding. An unsuitable and unhealthy home makes its fatal influence felt. More especially in the summer all these unhealthy conditions are felt. It is undeniable that diarrhœa in young children is connected with such homes as those in which unbearable outside heat rushes in to join equally unbearable inside heat, and that the close heaps of brick and mortar in large towns work like ovens in overheating unventilated rooms. If adults, rejoicing in the very slightest of covering, can only stand it when all the windows are open; if they rush to the water tap, either for a refreshing draught or a cooling wash; if they are glad to change their wet shirts for dry ones, and having done all this, haste, flee from the suffocation of four walls to breathe freely in the open air, how can one expect the baby in the cradle to survive without

similar relief? The child should be put to sleep in the room where the greatest amount of air can be admitted. Take off all its superfluous clothing, and lift it from its stuffy bed. Free, with only its little shirt on, and covered with a sheet, lay it on a freshly-aired mattress. It may be spared the indiarubber sheet, as it prevents the cooling of the skin and leaves it free to toss about and stretch its limbs. It should be frequently sponged all over with water at 81° to 85° F., and then be rubbed again when dry. Take it out every day, even when it hardly appears old enough. Mothers, who by day are too busy to take the infant out, need not be afraid of the evening air; indeed, its greater freshness and purity, and the heat at night in hot dwellings, makes this time the best. But the ignorance of people as regards overheating infants comes to a climax in their bedding, especially of the perambulator. Swaddled like a mummy in its coat, covered so that it shall not catch cold from a draught, it is called "going into the air to breathe." God's pure untainted air strengthens its lungs, impregnates its blood with oxygen, but, instead of this, all the air it gets is that between the awning and its bedding. On the other hand, infants should not suffer from cold. As the child cannot create as much heat as he loses, it must be made up to him. It is best if the mother or nurse takes it into her bed. The danger of overlaying the child is not very great, as far as the mother goes. But if it does sleep in a separate bed, this must be properly warmed, especially in winter, though not just at the moment when the child is laid in it. The best thing is a large hot water bottle, wrapped in cloths, and laid under the mattress on which the child lies. As an infant for the first few weeks does nothing but sleep, when it is not having the breast or crying, great noise must be avoided near it, so that it is not disturbed. It should never be excited, spoken to, or amused by holding white objects before its eyes, as stupid mothers and nurses often do when once it has passed its first quarter.

The more it sleeps during the first year the more it gains in nervous force. It should be recumbent, the head a little raised, whether it is in bed or being carried. To let it sit up too early is not good, as the weak little spine suffers. In taking it up, the head and shoulders should be supported with one hand. I have now finished my communication. Only by correcting hygienic errors in infancy is there any real remedy for infant mortality. (For the "Care of the

Skin" and "Bathing Infants" see I., Chap. 17; "How shall we Harden our Children?" Comp. also the article "Wasting Consumption in Children," "Eyes, Inflammation of the, of the Newly-born," "Wind Flatulence in Little Children," "Diarrhœa," "Thrush," "Liver, Diseases of the; Jaundice Infantile," "Dentition in Children," etc.)

Suffocation, Treatment for. — Suffocation most frequently happens through inhaling poisonous air, as for instance, coal gas that has escaped from defective gas pipes, or through the taps being left open, etc.; by the escape of charcoal fumes through the opening of stove doors; by carbonic acid gas which has been developed in rooms crowded with people, or which has arisen in wells or in cellars in which beer or new wine has been fermented; from mine gases, such as is found in old wells, etc.; and by sulphuretted hydrogen that has collected in mine shafts. Suffocation may also arise either by the air passages being mechanically constricted from without, as in cases of hanging or throttling, or through these being stopped up by foreign substances finding their way therein (pieces of bone, fish bones, etc.), or with the products of decomposition caused by some disease, as for instance, in cases of diphtheria, croup, etc. Finally, it may arise through drowning. The suffocation that is caused by breathing poisonous air is generally very rapidly followed by stupor, the breathing is powerfully interrupted, the pulse ceases to beat. The person to whom the misfortune has happened goes into convulsions, becomes unconscious, faints away, and death ensues if the necessary means are not immediately taken to save the patient. Any one who has lost consciousness, or appears to have died from inhaling poisonous air, should be treated in the following way with a view to saving him: In taking the patient into the fresh air, which is the chief thing, be very cautious with him, so as not to fall a victim yourself to the poisonous gases. In order to get into a room that has become filled with coal gas or the fumes of charcoal, seek, before all things, to produce a powerful current of air by opening the doors and by breaking the windows in from outside. If the room is in an upper storey, then, for this purpose, get up on a ladder to it or take a long pole. Or, if this is impossible, bind over your mouth and nose with a cloth saturated with vinegar and water in equal parts, and before entering the room draw a deep breath, then spring in with a couple of steps right up to the

nearest window and break it. Then put your head out of window, take a deep breath of fresh air, spring to the next window and do the same thing. This should be continued until there is a sufficient supply of fresh air in the room to enable you to carry out the apparently dead person. If the room is filled with coal gas, then of course you must not bring in a light. Find the windows and try to reach them. The reviving process has to be carried out in the same way and in the same order as described in the treatment of hanged persons.

In order to enter rooms filled with carbonic acid gas, pit gas, or with sulphuretted hydrogen, one must, since these spaces are generally either cellars, or old wells or sewers, or mine shafts, etc., and underground, attempt to renew the air by quickly letting down and drawing up again an open umbrella, by throwing down lime water or lime milk (that is to say, lime in an almost saturated solution); especial use may be made of lime milk that has been produced by dissolving lime in water, and which can be thrown down from buckets or watering-pots, or introduced into the cellar or cavern, etc., by dipping bundles of straw in it, and letting them down into the cellar. These have the effect of absorbing the carbonic acid, or the sulphuretted hydrogen, very rapidly. Firing a gun or pistol into the shaft (taking care, of course, that the cartridge does not contain a bullet or small shot); or one may cause a renewal of the air by throwing down burning paper, in which case, however, care must be taken not to cause a flame to shoot up. The rescuer who, after these preliminaries, wishes to enter the space filled with poisonous vapours, in order to bring up the apparently dead person, must have a strong rope bound under his arms around the breast and shoulders. Around his left hand wind tightly a signalling line, and a cloth saturated with vinegar and water or lime water should be fastened over his mouth. Then the rescuer provides himself with a second rope, and descends by means of a ladder into the shaft. The rope to which the rescuer has been attached must always be held taut by the other helpers above ground, so also must the signalling line, which must be carefully watched by one person specially appointed for this task. The rescuer who is down below may perchance suddenly lose consciousness, and one can, by means of the signalling line, immediately recognise whether the arm of the rescuer which is attached to it is

still consciously moved or not. In the latter case the rescuer must be rapidly drawn up. When the rescuer reaches the bottom of the shaft, he must, as quickly as possible, try to fasten the rope around the chest and shoulders of the apparently dead man. Then he signals with the line, "Ready!" Whereupon the rescuer, and the one who has met with the accident, have to be rapidly drawn up. Having reached the surface, the attempt at revival must be made in the same way and with the same order of procedure as explained in the article "Hanging, Treatment of Individuals suffering from."

Suffocation, which is produced by the presence of foreign bodies (such as pieces of bone, large pieces of solid food, etc.) in the œsophagus (gullet) (and when the person to whom the accident has happened turns blueish red in the face, utters inarticulate sounds, flourishes his arms, and then falls down unconscious) requires the following treatment in the attempt to remove it: With the fingers of the left hand firmly and rapidly grasp the nose of the suffocating person, holding it closed, and then, pushing the thumb and first finger of the right hand as deeply as possible over the root of the tongue down the pharynx, attempt to grasp and draw out the foreign body. If this manipulation has no result, then the abdomen and breast of the affected person must be energetically pressed against a cupboard or chest of drawers, or some other firm object, and one must give him one or two short, hard blows with the closed fist on his back, between the shoulder blades. By this means the air is driven out of the lungs, and it is possible that the foreign body may, in consequence, be made movable and thrown out. In all cases, however, send immediately to the nearest doctor, and explain to him fully what has happened, in order that he may at once bring with him the instruments necessary for the removal of the object that has become fixed.

Other kinds of suffocation, especially those arising from morbid deposits, are treated of separately under the headings of the special diseases in this part of the book.

Sulphur Baths. (See "Mineral Baths.")

Sulphur Poisoning. (See "Poisons.")

Sun Bath. (See Index.)

Sun Ether Ray Apparatus, Korschelt's.—The sun is the source of every power that acts upon the world. From the sun we receive light and heat, in the shape of vibrations of the atmosphere pervading space. The atoms, called ether, and

which are a million times smaller than molecules, are flung upon space, equilineally, with immense rapidity, and so reach our planet, the earth. The atoms lose their own motion, and furnish the powers which the organic world (man, animals and plants) requires for its maintenance and sustenance by means of light and heat. The ether ray apparatus (Fig. 403) is constructed with the idea of attracting the atoms moving about in every direction, in such a manner as to move in parallel lines, as the sun's rays do originally. This is done by drawing the atoms out of the air by means of a copper chain attached to the base of the apparatus, and then setting them in rotatory motion. Thereby the atoms, which unite very closely, communicate velocity to one another, by which they are again thrown off, in consequence of the peculiar arrangement of the copper chain on the sides of the apparatus, which are opposite each other. By this means dark bundles of sun rays issue from the apparatus. If a human



Fig. 403. The Sun Ether Ray Apparatus, by Professor Korschelt.

being, or an animal or a plant, be brought under the influence of these rays, he will resume his life's functions with increased energy, and will be capable of greater force, as he has derived as much strength from the rays of the apparatus as it could convey. Upon human beings the apparatus works much the same as curative magnetism, as it acts on the same principle—the conveying of vital power (according to Korschelt, in the form of rapidly revolving ether atoms) which is thrown off upon the patient from the magnetiser. (Comp. the art. "Magnetism.") Healthy people are strengthened, refreshed, soothed and rejuvenated; invalids (wherever receptiveness exists)

improved and cured. The radiation of ether varies (according to the constitution of the patient) exactly the same as the emanations from the magnetiser. While one feels a warm sensation on the skin, the other feels cold; a third experiences a drawing, pressing sensation in the parts played upon, etc.

When the apparatus has been at work for about five to ten minutes, the feeling of warmth changes into cold, or just the contrary occurs. Another, again, does not feel the slightest effect from the apparatus, or he feels reflectively when the back part of his head is acted upon, because of the nerves being overcharged by the blast on the right hand, while the left remains unaffected. Or, while the hand shows no feeling, the left leg does all the more. Perhaps in the right hand a slight pricking is felt, and the right leg is quite untouched.

The radiation is naturally felt most by sensitive persons. The effect also depends on the relative positions of the apparatus and the object, the sun's light and its situation.

The human body uses the strength conveyed in the most practical manner. A reduction of pain, the appearance of perspiration at a critical moment (crisis), the lowering of a (possible) high temperature, soothing of the nerves and improved sleep, are soon noticed. The apparatus is very beneficial to nervous patients, in neurasthenia, hypochondria, hysteria. Plants grow very much faster under its action, produce about double the amount of blossoms, and look flourishing, glossy, and bright-coloured. If they are drooping, they soon resume their usual height; if they are withering, they recommence their growth.* Just lay the flower-tops on a slide, which is turned upwards. One slide is enough for several blossoms, near one another, if they are placed on it one by one, at intervals of two or three days.

It would take me too long to describe the apparatus as it deserves; there are, in accordance with its special purposes, a great variety.

Sunstroke.—Sunstroke is an injury of the body, occasioned by overheating it. The effect of the sun's rays does not suffice in itself to set up sunstroke, but its appearance is only remarked in cases where people have to undergo great exertion, on hot days, and, in consequence of deficient

* The actually existing, visible, perceptible effects of the apparatus on plants, refutes the argument that its action depends on themselves. Plants cannot invite the action upon themselves.

internal moisture, are unable to perspire sufficiently. The radiation of the heat of the body is stopped by the outside temperature, while the internal heat is increased by muscular action, and, owing to deficient or altogether lacking perspiration, no escape of the body's heat, i.e., no cooling, can take place. The inevitable consequence is an overheating of the body. The direct effect of the sun's rays is therefore not the sole cause of sunstroke, but the danger of overheating also exists, when, on sultry but cloudy days, troops of soldiers march in closely-serried ranks, also in the heated holds of steam boats in tropical seas, in mines, etc. Premonitory symptoms are: General lassitude, weakness, drowsiness, pains at the back of the head, restlessness, oppression on the chest, dizziness, voiceless speech, full, leaping pulse, high temperature, sometimes delirium.

When the stroke comes the sufferer falls unconscious to the ground, his face is red or purple, the skin is hot and dry, the eyes fixed, the breathing laboured and superficial, swallowing impeded, the pulse low and barely perceptible. If death does not take place at once, affections of the lungs, delirium, and a torpid, feverish condition, or heart troubles; cold, damp skin; snoring and slow breathing, drowsiness, etc. In case of recovery, the after-effects are paralysis and disturbance of mental equilibrium.

The treatment of sunstroke is found under the heading "Brain, Arterial Obstruction in the." If the stroke comes on in the open air, the patient should be carried at once into a cool spot, in the shadow of a tree, a fence, or into a damp meadow. But should it happen in an enclosed space, he should be taken into the open air. Further measures are given under "Swooning." Resultant illnesses require suitable and moderate natural treatment. Precautions against sunstroke are: Drinking freely during heating muscular exertion, avoidance of crowding when marching in close column, especially on the roads in hot weather, and on sultry days when there is not a breath of air stirring.

Suppuration. (See "Abscess.")

Sweat Glands. (See Index.)

Sweating. (See Index.)

Swellings (Tumours).—In speaking of inflammation (p. 1140), I have mentioned the actual pathological processes of the congestion of the blood, of accelerated flow to the part, and

especially the discharge of a serous fluid. The process of inflammation cannot be strictly limited, but the adjacent parts are drawn into sympathy with it. We especially notice how a portion of serum oozes through the tissues of the blood vessels, and saturates the adjacent network in a greater degree, should the inflammation be extended. The serum swells the network into which it has penetrated, it becomes enlarged, and is now termed a "tumour," although "swelling" would be more correct, as by "tumour" we understand, strictly speaking, that a diseased formation has been set up. In this respect we also distinguish swellings of the skin, bone, glands, flesh, joints, knuckles and cartilage; also cancerous, cervical, testicular, scrotal and fatty tumours.

The treatment of a swelling is local. Apply stimulating bandages, 57° to 72° F., not only to the affected part, but to the adjacent, apparently healthy ones, alternately with vapour compresses or local vapour baths. The general treatment is directed to the cause. In doubtful cases follow the General Strengthening Treatment, or a modified Abstinence Treatment.

Swollen Feet. (See "Feet, Swollen.")

Swooning represents a loss of consciousness, either from poorness of the blood, or from a deficient flow of it to the brain. In general this is occasioned by a weak action of the heart, which fails to supply the brain with the necessary quantity; hence it is the complaint of the weak and delicate, producing fainting fits. Swooning not infrequently arises from an overflow of blood to the brain, or from nervousness, epilepsy, or a tendency to heart disease. The symptoms vary in character; emotion (sudden psychical pressure) which occasions a determination of blood to the heart, such as scorn, terror, passion, or the depressing effect on the nerves of sorrow or hatred, violent bodily pain, great loss of blood, over-fatigue, sufferings from hunger and thirst, weakening diarrhœa; heavy mental pressure on the individual's weak nerves, as the sight of frightful scenes, operations, or accidents, executions; violent exertion, inhaling damp or poisonous gases, stoppage of air in the lungs, through drunkenness; influence of excessive cold or heat, or from pressure in a crowd. Two grades of the malady are distinguishable — faintness and unconsciousness.

Faintness is characterised by feebleness, black specks before the eyes, pallor, cold perspiration on the forehead produced by a feeble pulse, retching and sometimes vomiting.

This condition may last for minutes or hours, consciousness not being entirely lost.

The symptoms of swooning are, highly increasing bodily weakness, pallor of the face, coldness of the extremities, lowering of the bodily temperature, black spots apparently floating before the eyes; low, quick, irregular, scarcely perceptible pulse; hard breathing, cold perspiration on the forehead. Finally, total unconsciousness ensues, causing the body and limbs to sink down, and a rigid expression of countenance to set in. The swoon may last for minutes, hours, or even days, the culminating point of the actual swoon being the semblance of death, by which apparently the faculties of life are reduced to a minimum.

In a swoon the attack is alleviated by the following measures. If the patient exhibits a blanched face and lips, a recumbent position in cool pure air, with the head slightly lower than the body and legs, is adopted. But in cases where the swoon has occurred through a tendency of blood to the head and chest, producing a flushed red face, it becomes necessary to lay the head and body high, to free the patient from all tight clothing, especially on the neck and body, removing also the shirt-collar, cravat, strings, belts, garters and braces, and sprinkling vigorously with cold water the face and chest of the sufferer. Later on, enemata at from 77° to 81° F. are applied, in connection with cold ones at from 68° to 72° F.

Swoons require the application described under the "Torpid Fever" condition (p. 634). Also compare the articles "Lightning Stroke," "Hanging," "Drowning," "Sunstroke."

Syphilis is a constitutional disease incurred by contagion, which is the result of an epidemic poison, of whose origin and existence nothing further is known. Only so much is certain—that the infecting matter does exist, is conveyed from one body to another, and is propagated in the infected organisation. The contagion is in the blood of the infected person, so that the slightest particle of syphilitic blood introduced into the skin of a healthy person invariably sets up syphilis. It implants itself in diseased secretions of the epidermis and membranes. If it should be on the skin of the lips, an innocent kiss would be followed by infection. But neither by urine, saliva, perspiration, milk, tears, fluid from the nose or windpipe membranes, can infection be conveyed, as none of these contain the poison.

The seed of the male and the ova of the female again are very receptive of the poison, and the consequence is that persons thus affected cannot have healthy children. There is no antidote to the poison. Anyone may be infected; a delicate skin affords an unusual susceptibility to infection. Whether recovery from the disorder, after a first attack, is any protection against a second, is uncertain — “Doctors differ.” Infection generally is brought about by sexual intercourse, though there are a number of instances known where it was conveyed by (drinking) glasses, pipes, surgical instruments, and other things used by the infected person. I have already warned you that kissing is a channel of infection. Midwives, infected themselves, may pass it on to pregnant women, or during a confinement; a nurse can give it to her patient if there is the slightest cut in the skin, or a tiny wound on the nipple may infect the infant. An infected babe with a sore mouth may carry it to the breast nipple of his nurse. We must not overlook vaccination, which is actually a poisoning of a human being by animal lymph, by means of which again the poison is conveyed. In short, there are so many channels by which anyone may incur this disease, that in associating with our fellow men, using strange eating and drinking utensils, kissing comparatively unknown persons, the greatest care must be exercised not to become diseased. The plague has extended so far in our time, that a university professor of dermatology unhesitatingly uttered these weighty words: “Gentlemen, I believe everyone to be syphilitic, unless I know that he is not.”

Syphilis may be inherited as well as acquired. The life germ may be poisoned from the beginning of its existence, if the father suffered in this way; or it may take it from the mother during her pregnancy, should she be first attacked at that time, but she may be infected at her conception. I must forego any treatment of syphilis from a practical point of view, owing to want of space. I will only remark that, in the course of centuries, syphilis has undergone diminution, and has assumed the form which we are considering to-day.

Between taking the disease and the appearance of the first symptoms a period of two to four weeks elapses. Then the first sign appears in the form of a hardening of the place affected (*ulcus durum*). It does not, as in cancer, raise a blister which bursts and then becomes a sore, but a hard lump develops, the size of a bean or pea. The interior of

this knot, seen under a microscope, displays a group of cells. The skin over this knot (the outer skin is the epidermis, the inner, nearest the membrane, is the epithelium) at first shows no change, but becomes thinner and glossier, and red, and discharges a serous liquid, which forms a scab. Sometimes it becomes an extensive abscess, with gristly edges. If the sexual organs were the means of contagion, the chancre will appear in males on the foreskin, either on the inner or outer surface, on the "glans," on the edges of it, at the entrance to the urethra, or in it. In females it develops in the private parts. If the infection entered at any other part of the body, the lips, the corners of the mouth, the tongue, the gums, breast-nipples, fingers, etc., may be the seat of the hard chancre. As a rule only one chancre is developed, but there are sometimes several. According to its position it presents many forms, but I cannot go into this now. The hard chancre may remain unchanged for three or even six months. As a rule it disappears when the secondary stage sets in, leaving only a brownish red spot behind. The more rapidly it heals the more speedily symptoms of general poisoning set in. The penetration of a contagious particle of poison occasions an irritation, and swelling of the nearest lymph glands sets up. This swelling is called an indolent buboe.

If the hardening is found in other parts, the results will be similar on the nearest lymph glands. But these often show a tendency to suppurate. In the secondary stage of the disease, swellings of the lymph glands occur in other parts of the body. Those most usually affected are those of the back of the head, the neck, and armpits, and often, after some years, are the only visible symptoms of an existing syphilitic lesion.

About five or seven weeks after the first appearance of the primary effects, the disease enters the second stage, which attacks the skin and membranes. The eruption is accompanied by shivering, with fever of varying degree, and its numerous co-symptoms. One eruption thrown out from the epidermis is red, and is called *roseola syphilitica*, consisting of small red spots of an irregular, circular shape; they neither itch nor hurt, sometimes appear singly, sometimes in groups of such size that the entire body is covered. But generally the amount lies between the two extremes, and the eruption appears on the abdomen, on both sides of the chest, on the

outer side of the arm, and on the thighs. Sometimes it breaks out on the forehead near the hair, in the palms of the hands and soles of the feet. It lasts about three to five months, and, in slight cases, then disappears, leaving little brown marks, which either disappear in time or turn white. Women are generally subject to the latter form, and the white spots occur most frequently on the neck. They also go in about two years from the first infection. Further troubles of the skin, in the second stage, are little blisters, sometimes called syphilitic waterpox, on the fingers and toes; sores of many kinds, generally on the harder parts of the body, sometimes on the leg—these always leave white scars, which never go away; large and small scabs, dry or moist eruptions of varied form, extent, sorts, order and colour (copper red, reddish brown, brown, light brown), appear; sometimes (unlike other syphilitic rashes) itch, now in one part then in another, for instance, on the forehead near the hair, but more often other parts of the face, the elbows, wrists, palms, and soles of the feet. Condylomata are a very important symptom, owing to their frequent occurrence; they are scabby, and found on those parts where perspiration or other discharges occur, the private parts, the waist, the inner side of the thigh, the navel, the division of the seat, etc. They are warty, of varied extent as regards their height as well as breadth; are covered with a tender greyish coating, which is sometimes festering and offensive; smart and itch if they come into contact with discharge from kidneys or bowels, and extremely dangerous, owing to their infectiousness—the discharge from them containing the poison. As regards eruptions on the membranes, they generally appear first on the throat, in the shape of purple round spots, and vary in extent. Besides these, there are angry, acute catarrhal symptoms, reddening of the membrane not covered with the eruption, swelling of the tonsils and uvula. A scaly formation appears on the membrane, in the shape of little swellings, which are greyish-white, flat, and circumscribed in appearance and of varied sizes. This eruption (called plaques muqueuses) may cause great trouble in the tonsils, uvula, etc., owing to its corroding nature. It also breaks out on the membrane of the cheeks, lips, and tongue. The lining of the nose, throat, and ear are often affected as well, and betray this in various ways. Hair and nails are also subject to the effects of the second stage. The hair comes out in great or small

quantities, the nails are dry, furrowed and lined, and fall off. The eyes are frequently affected by iritis at this stage. (See "Eye Diseases.") At this time, too, the bones are affected, especially the skull and the shin bone. The piercing pain that is now felt increases at night and ceases at dawn, after perspiration. If the cartilage covering the joints is attacked, it swells, becomes bright red, and is very painful. Joints and tendons are not so often affected, but the spleen and the kidneys generally are.

If syphilis be treated according to the very careful and conscientious rules of the Natural Curative Treatment, it will decrease in about two or three years from its inoculation. Under scientific treatment with mercury, or iodide of potassium, a tendency to drug poisoning is the rule. In many cases the disease enters the tertiary stage, when the general health is greatly disturbed, and pathological changes in the bodily organs take place. The tissues, the membranes and blood vessels of the brain and spinal cord become diseased, and, according to the constitution, assume an abnormal and complicated condition. (See further "Brain, Diseases of the, and Spinal Cord.") The organs of the periphery nerves, digestion, respiration, urinary, generation and circulation, display the later symptoms of syphilis. The skin and muscular tissue now share in the syphilitic symptoms, owing to the appearance of (*gummatæ*) swellings of the bone in various places; the joints by inflammation, swellings, festering and crippling; the bones by ulceration, suppuration, mortification and decay. Many sufferings, extending over one or even two decades (although the patient is under the idea he has long ago recovered), are attributable to tertiary syphilis, hitherto latent.

The most important agent in curing syphilis is the application of damp heat in the form of vapour. Strong patients can take four to six enclosed or chair vapour baths a week; weaker persons three to four for thirty or forty minutes. Immediately afterwards he should be put in an entire pack, 77° to 81° F., for three-quarters to one-and-a-quarter hours. Then he should take a bath, 81° to 86° F., or a sitz bath, 86° to 90° F. Further hydro-applications are a daily wash all over, 73° to 77° F., and nightly stimulant packs on the neck, body and calves. At first the eruption will increase during this treatment, but will then die out. When this has taken place, the patient should be massaged from head to foot for fifteen to twenty minutes. The diet should be strictly vegetarian,

and consist mainly of a judicious solid regimen, the use of any beverages as far as possible to be avoided. Instead of vapour baths, air and sun baths should be taken in summer time. The patient must calculate that he requires two or three months for a cure, and, when the symptoms have subsided, some weeks more for after-treatment, in which vapour need be applied two or three times only a week. Scaly eruptions of the epidermis and moist boils require the treatment laid down under "Eczema." Affections of the mouth and throat membranes should be treated by the prescribed local treatment under "Mouth, Catarrh of the." Frequent rinsing and gargling with water 64° to 68° F. (and for the latter 73° to 77° F.) are generally sufficient. To the water add a little fresh lemon juice. In inflammation of the joints, knuckles and cartilage, follow the directions given above. If any special symptom should show itself, it can be treated as advised in this work. In case of hard chancre in the first stage, use the bandage prescribed for "Chancre, Soft."

Syringes; Washings-out. (See Index.)

T.

Tabes Dorsalis. (See "Spinal Cord, Atrophy of the.")

Tabes Mesenterica. (See "Tuberculosis.")

Tannin Baths. (See Index.)

Tapeworm. — The tapeworm is one of the most frequently met with and troublesome intestinal worms. There are various kinds of tape-worm, but I am describing only the three most important species:

1. The burrow-head worm (Fig. 404) is one of the most important tapeworms found in the human intestines. They are supposed to be caused by fish, but are frequently found in individuals who have never tasted fish. In reality, the cause of its presence has never been clearly defined. The worm is very much found amongst the Swedish, Poles, and in Western Switzerland. It has a length of four to seven yards. Its sections are short and broad, and number three thousand to four thousand. The head (Fig. 405), is thin, bulbous, and has at the sides two long suction openings. The neck is thread-like.

2. The long tapeworm possesses, of all tapeworms, the greatest length, six to eight yards. It is most frequently found

in individuals who eat raw beef, more particularly those thoughtless people who take underdone beefsteaks, with the idea that they are very nourishing. The sections of this worm are broad, thick, and opaque; the head (Fig. 407) has four strong suction openings. The single sections number one thousand to twelve hundred; they may be divided, but repair themselves again.

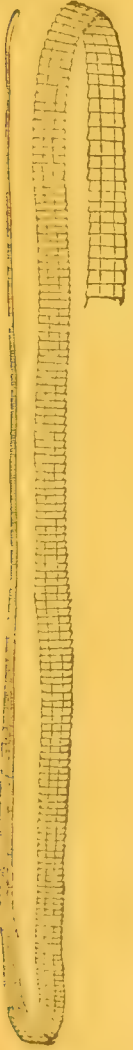


Fig. 404.
The Burrow-head Worm.
(One-eighth the natural size.)

3. The chain-worm (Fig. 408) is usually developed from pork. Its head (Fig. 409) is of about the size of a pin's head, is globular in form, and has on its extremity a kind of plate, which has a circle of twenty-six to twenty-eight little hooks of various sizes. The head, besides this, has four prominent suction openings. These small hooks serve to fasten the worm to the intestinal mucous membrane, the neck is thin and thread-like, about one-third of an inch long, and the single sections which become wider (up to one-sixth of an inch) and longer (up to one-third of an inch) are attached to each other. In form, size and colour they resemble pumpkin pips. They number seven to nine hundred, the whole worm



Fig. 405.
Head of
Burrow-head
Worm.
(Greatly magnified.)

grows to a length of two to three yards, and sometimes more. It is widely spread in North Germany, Holland, England, and in the Orient. As we have already said, it originates in the pig. The germ in the pig (Fig. 410) enjoys a life of three to five years, and then dies through calcification. If we eat pork, either insufficiently smoked, or diseased, and containing a germ, chain-worm is quickly developed in the small intestine. From the lower sections of the chain other sections are again thrown out,

it may produce the semblance of other diseases. Therefore the voiding of the sections is the most certain sign of a tapeworm in the human intestines. The symptoms usually are nausea, vomiting, diarrhœa alternating with constipation, loss of appetite varied with ravenous hunger, stomach and abdominal pains (particularly after partaking of acid, salt, and highly-seasoned foods, sardines, herrings, salad, onions, mustard, or fruit), pressure in the abdominal regions, flatulence, salivation, furred tongue, headache, giddiness, cold feet and hands, nervousness, palpitation of the heart, feeling of choking, acidity, etc. Children, in addition to this, frequently suffer with fits.

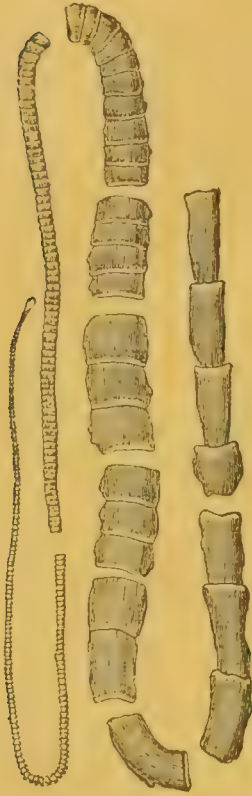


Fig. 406. The Long Tapeworm.
(Greatly decreased in size.)



Fig. 407. The Head of Long Tapeworm.
(Greatly magnified.)

There are various remedies for destroying and expelling the worm. One should take for a long period a strictly vegetarian diet, principally wholemeal bread and fruit; and, as a second course, cranberries boiled with pumpkin seeds. Several times a day loosening enemas followed by small cold ones, as well as two or three trunk baths. Should the worm still remain, take a cupful of the just-mentioned second course (one quarter to one half-pound decorticated pumpkin seeds and cranberries), fasting, in the morning. One to one-and-a-quarter-hour later, take two to three tablespoonfuls of castor oil in peppermint tea or in black coffee. Should the guest have not departed in four to five hours, repeat the process. One should keep to bed during this treatment, as sickness and weakness may result.

Another remedy: By living on fruit for several days the intestinal mucus is thinned, in which the worm generally likes to quarter himself. Very little wholemeal bread should be taken during this time, and when thirst necessitates it, a little aerated water. In the evenings plenty of

cranberries should be eaten; at night a stimulating abdominal bandage (66° to 68° F.) and stimulating calf packs (59° to 61° F.). On the day when we seek to expel the worm, take several tablespoonfuls of olive or castor oil in black coffee, on an empty stomach; fill a commode half-full with boiling milk, and then, with all patience, wait. This is very important. Should it have departed, administer a small cold enema (68° to 72° F.) to strengthen the intestine, and for some days following observe a strict diet. It is also necessary to continue the abdominal and calf packs for about a week. The burrow-head worm is treated with male fern (*radix filicis maris*), which



Fig. 408. The Chain-worm.

(About two-thirds of its natural dimensions.)



Fig. 409. The Head of the Chain-worm.

(Greatly magnified.)

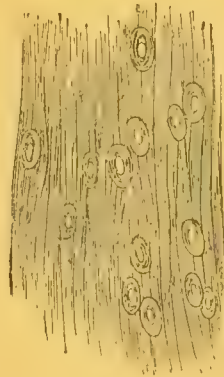


Fig. 410. Infested Pork.

(Germs about two-thirds of their natural size.)

is found very efficacious. After preliminary treatment, as described above, take on an empty stomach each morning forty to eighty grains of the powdered root, two or three doses following each other at short intervals. After two or three hours a tablespoonful of castor oil, and after a further two or three hours' interval, a second tablespoonful.* The ejected tapeworm must be minutely examined to detect the presence of the head. Should the thin threadlike neck tear and leave the head (which constitutes the animal), all trouble will have been in vain. From the head a new animal is again formed.

* Besides male fern, the couso plant, and a still more efficacious remedy, kamala powder, are recommended as remedies for destroying the worm.

Tapping is a favourite "scientific" remedy with the elect medical brotherhood, to remove any quantity of fluid which collects in some severe diseases of the chest or abdominal organs; this is done to comfort the patient, as the drawing off of the fluid removes the pressure caused by it. The operation is performed with an instrument called a trocar and canula, the cavity being pierced with it to let out the collected fluid. The Natural Curative Treatment does not believe in "tapping," but removes the cause of the disease of which the collection of the fluid was a consequence; this is done for other reasons than avoiding the operation.

The Teeth.—In the healthy upper and lower jaws of an adult there should be thirty-two white sound teeth, that is, sixteen on each jaw.

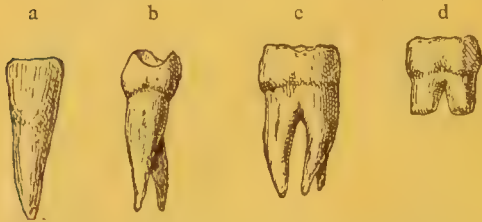


Fig. 411. The various Human Teeth.

a. Incisor. b. Bicuspid. c. Molar. d. Permanent molar (while growing, therefore not developed at the root).

In the middle of each jaw are four incisors (Fig. 411 a), and next to these, in a row, come, on each side, one canine tooth (Fig. 412), two bicuspids (Fig. 411 b), and three molars (Fig. 411 c). The teeth stand in the following order:

$$\begin{array}{l} \text{Upper jaw: } 3, 2, 1, 4, 1, 2, 3 = 16 \\ \text{Lower jaw: } 3, 2, 1, 4, 1, 2, 3 = 16 \end{array} \} = 32$$

Each tooth is fixed into the jaw as a nail is in the wall, that is to say, it does not form part of the jaw. Attached to the teeth there is a thick layer of mucous membrane called the gums. The part of the tooth which is in the mouth is the "crown" (Fig. 412 a); the part in the jaw (Fig. 412 e) is called the "root" (Fig. 412 c); and the part which is covered by the gum (Fig. 412 d) is called the "neck" (Fig. 412 b). The deep cavity in the jaw that receives the root of the tooth (the alveolus) is thinnest at the back and at the front, and thickest at the sides. Inside the alveolus the tooth is surrounded with a fibrous, thin membrane, which is very rich in vessels and nerves, and which surrounds both the neck and root of the tooth. This membrane is called the "periosteum" of the teeth. When a tooth is sawn through lengthwise, one can, with the naked eye, see that it is composed of three different substances. The principal of these is the "dentine" (Fig. 413 a), which is a very hard, fibrous,

bony substance, and in which there are many tiny canals. This bony substance is also called "ivory." This dentine is on the crown of the tooth, covered by a glaze called "enamel" (Fig. 413 b), which is a hard mass, like glass or enamel, but at the neck and root of the tooth the dentine is covered by cement (tooth cement, Fig. 413 c). At the pointed end of each root (Fig. 413 e) there is a tiny canal, that runs into a hollow inside the tooth (tooth pulp cavity, Fig. 413 d). Through this canal, nerves and blood vessels (Fig. 413 e and Fig. 414) enter the tooth cavity, and fill it (being afterwards surrounded and kept together by the internal lining membrane and tissues). The whole contents of the tooth cavity are, as a rule, called the "tooth pulp." It is by means of the tooth pulp that the dentine is nourished through the small canals. The teeth are used for mastication and cutting up the food that has been partaken of, some teeth being used to bite the food, and others to crush or grind it, the shape of the teeth is according to the duties they have to fulfil (Fig. 411). The incisors are wedge-shaped, the canines (of which there are two upper and two lower) have a plump-pointed shape; the crowns of the bicuspid teeth have two points or cusps on their upper surfaces, whilst the crowns of the molars have from three to five. Between these cusps there are grooves more or less deep. During mastication the cusps of the upper teeth meet the grooves of the lower, so that the solid food may be crushed. The incisors and the canines have one root each, the bicuspids have two each, and the molars three or four each. In the embryo state, in which a tooth already begins to form during the third month, the tooth papilla develops first, being surrounded by tooth follicles; this then represents a kind of hollow, round which the bony structure develops. The eruption of the temporary teeth (the first

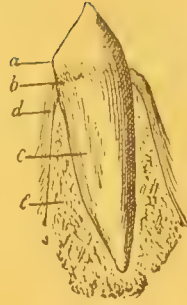


Fig. 412.
A Canine Tooth
in its Alveolus.
a. The crown. b. The
neck. c. The root.
d. The gum. e. The
jawbone.

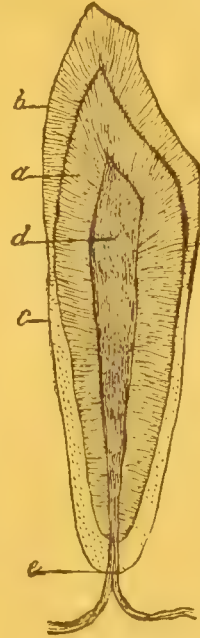


Fig. 413.
An Incisor (cut
in longitudinal
sections).
a. The dentine. b. The
enamel. c. The ce-
ment. d. The tooth
cavity. e. The point
of the root, through
which nerves and
blood vessels enter
the tooth cavity.

dentition) takes place during babyhood, generally in the seventh or eighth month, but sometimes also in the tenth or eleventh month of the first year of life. As a rule, two teeth are cut at the same time, the first being generally the two middle incisors of the lower jaw, then the two middle incisors of the upper jaw. When the other teeth come through, it is occasionally on the lower and sometimes on the upper jaw. The two bicuspid appear in the second year of life, the two canines generally coming through after these. The child now possesses twenty teeth, and keeps these from his third year to his seventh year. There are, therefore, still twelve teeth wanting in the child's mouth (as the adult has thirty-two), and these

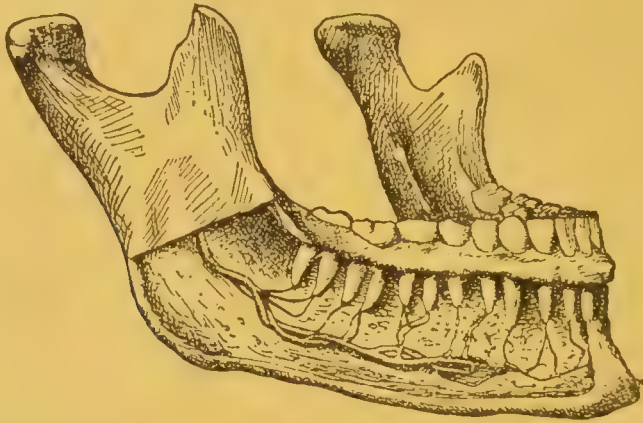


Fig. 414. The Lower Jaw, showing the Teeth in position.

The anterior wall of the lower jawbone is cut away, to show the entrance and distribution of the blood vessels. To prevent confusion, the nerves which accompany them are not shown.

are the six hinder molar teeth on the upper, and the six on the lower jaw.

The twenty teeth (milk teeth) begin to drop out gradually after the seventh year, and when the eighth year comes, there are generally not many of these left. The second dentition is almost completed in the fourteenth year of life, the last and fifth molar teeth (the so-called "wisdom teeth") being the only ones missing. The wisdom teeth appear in about the twentieth year of life. The process of dentition is as follows: The growing, permanent tooth cuts through the division that separates it from the first tooth; it soon occupies the space as well as the root of the first tooth, the latter being gradually pushed out. The thirty-two permanent teeth generally cut through the gums in the following order: After

the first molar teeth have cut through (in the seventh year), the two middle incisors of the lower jaw appear, to be followed soon after by the inner incisors of the upper jaw. In the eighth year the lateral incisors are cut (in the same order as the others were), and then follow the first bicuspid (which are cut in the ninth or tenth year), the second bicuspid (which are cut in the eleventh year), and the canines (which are cut in the twelfth or thirteenth year). The second molars generally appear between the thirteenth and sixteenth year; the wisdom teeth between the nineteenth and thirtieth year (in some cases they do not appear at all). Chemically good teeth which were formed during a normal diet are strong, and have a yellowish-white shiny appearance. The close layer of firm cells gives sound teeth this colour, whilst those of less strength are white, or a blueish-white.

Teeth, Care of the, includes rinsing the mouth, after rising, with water (68° to 72° F.), and brushing the teeth with good powder. The brush must be neither too hard nor too soft. The teeth must not be brushed horizontally, but vertically—the upper ones downward, the lower ones upward. The very top, the inside, and the spaces between, must be brushed. Rinsing the mouth with not quite cold water should be done after every meal, and again at bedtime. Food particles are to be removed from between the teeth carefully, without injuring the gums, by toothpicks made of wood, quills, tortoiseshell, ivory, but never of metal. The teeth must be carefully cleaned after eating sweets or sugar, and to test whether they are clean, suck them, and if no taste be left, they are all right. If they are not kept perfectly clean, tartar gathers in the back of the lower incisors, in the spaces between the teeth, and this consists of phosphoric and carbonic chalky matter. But if it does not come to that, an offensive deposit is formed on the teeth, composed of cells of the membranes, particles of food, and mucus. This ferments by the warmth of the mouth, and turns sour. The fermentation cracks the enamel and spoils the teeth; they weaken, get unclean, and decay—in a word, caries ensue. The gums are irritated, they inflame, bleed easily, and may suppurate. Be most careful to avoid differences of temperature in food and drink, for the sake of the teeth. The enamel is a solid substance, like glass or china; it is easily injured by extremes of heat and cold. Fractures and cracks are made which are the entrances for all sorts of germs. The teeth should not be used to

bite hard substances, nuts, sugar, kernels of fruit, etc. For this not only cracks, but breaks off pieces of enamel. Even biting cotton is bad for the teeth. Where the enamel is thin, near the crown or at the edge of the gum, it is easily broken off. In such cases the tooth is exposed, and feels the contact with anything sour. This feeling must be stopped at once by filling up the cracks with chalk or bicarbonate of soda. Persons subject to acidity in the stomach, to sour fermentation and taste in the mouth, must be exceptionally careful to cleanse the mouth to prevent any bad results from them. This is why washes, tooth powder and paste, which contain acids, must never be used. Solutions of hydrochloric acid or alum, weak solutions of nitric and salicylic acid, make the teeth beautifully white for a time, but it does not last long—the teeth soon become decayed. All sharp and pungent tooth cleansers are bad for the teeth, such as cigar ash and soap containing caustic alkali. Use only finely-powdered chalk. That is an excellent powder. In eating, get accustomed to using all the teeth and both sides of the mouth. Mastication acts as a purifier of the teeth, especially of the front ones, and the side that is not often used (because of defective teeth) presents a splendid opportunity for the accumulation of deposits that ferment, and further spoil the teeth. The teeth should be examined once or twice a year by an experienced dentist, and cleansed of all deposits, and the decayed ones filled.

Teeth, Disorders of the. — The teeth are not only the chief one of aids to digestion, but are an ornament to the mouth. A perfect and good set of teeth is rare, owing to the present conditions of life, the multitude of admixtures of the humours, the varied digestive troubles and insufficient care, so that toothache and sore gums are the rule. These will now be discussed consecutively.

Caries of the Teeth (Decay). — This disease, which is not noticeable at first, is a gradual chemical fermentation and destruction of the dental component parts, owing its origin to a recurring gathering of liquids, saliva and mucus, injuries to the enamel, recession of the gums, and also in defective composition of the teeth themselves, owing to indigestion during their formation. It is the principal cause of teeth going “bad” and decaying. It is originally caused by a sort of infection, brought about by the decomposition of particles of food lodged between the teeth. There

may also be a predisposition of a scrofulous nature, and other causes may be — injuries to the enamel, causing fractures or decaying the teeth gradually; rapid alternation of heat and cold, acid or rich food, acidity in abnormal saliva (in scrofula, syphilis, diabetes, indigestion), the use of unsuitable tooth powder and tinctures to whiten the teeth, especially those containing alum or tartaric acid; neglect in cleansing the mouth of food particles, which then ferment; too many sweets, leaving all sorts of fragments between the teeth, which then become fermented by the acids of the mouth; and saliva poisoned by mercury, disturbed digestion, etc. Tobacco smoking, on the contrary, is not injurious to the teeth, though it is erroneously supposed to be, for tobacco contains not only carbonic acid, which is good for the teeth, but is free from any acid that could injure them. As a matter of fact, it contains ammonia and other alkalies that are antidotes to caries. It is as beneficial to smoke the cavities of hollow teeth as it is to smoke meat. There are two sorts of caries, the acute and moist, the chronic and dry. The first is the most common. It sets up at the crown, or halfway down, and may extend to the root. When it starts at the crown, a little speck (black, yellow, or dull white) appears, turning into a groove or a hole. Here foreign substances collect, and increase the decay. The caries are yellow or black, and offensive. A fungus grows, and this again helps on the decay. If the hole penetrates deeply, and the decay has touched the bone, the caries develop rapidly all round. Penetrating substances, such as food particles, hot and cold drinks, air, etc., getting into the inner pith, create sharp pain. If the caries extend, the hollow in the tooth looks black; but if they penetrate downward, there is nothing to be seen outside except a tiny hollow in the crown, and this may be hidden between two teeth. If the caries extend beneath the enamel, the crown is blue or dull white. It seldom gets to the root, but should it do so it progresses much more slowly, as the root tissues are very hard to work through. Caries may be found in more than one spot of the same tooth, or in many teeth at a time, oftenest in the upper incisors and the front teeth, especially in scrofulous persons. Dry caries begin with a brown spot in the enamel of the crown, which grows into a little black hole, which again extends very slowly without becoming moist or soft, and without pain or smell. This generally attacks the front teeth. The tooth crumbles in the course of time,

becomes hollow and breaks, leaving the tooth embedded in the gum.

Prevention is very essential in caries, and care is the greatest help in this. (See "Teeth, Care of the.") If caries have begun, it is necessary to prevent its progress and protect other sound teeth. To effect this, the caries should be carefully scraped off and all the holes filled up. This is called "stopping," and may be done with gold, silver, tin, and composition, and experts should perform the work. If the caries be very bad, the teeth should be extracted.

Gums, Growths in the, are the result of previous inflammation of the gums. It is a permanent, elastic, dark-red, differently-shaped and bleeding swelling, an accompaniment of decayed teeth, fungi, suppuration of the gums and diseases of the jaws. The treatment is the same as for inflammation of the gums. The frequent use of bed vapour baths, one to four chair vapour baths, head vapour baths, long soothing baths (82° to 87° F.), sitz baths, foot baths, soothing massage of the neck, and nightly stimulant packs applied to the neck, chest, shoulders, body and calves. A bad tooth is best taken out.

Gums, Inflammation of the; Gumboils. (See "Mouth, the.")

Gums, Recension of the, exposes the roots of the teeth to air and acids, whereby they become painful, and seem to project from the gums. It is caused by want of attention to the teeth and mouth, old age, and constitutional disorders, as scrofula, syphilis, mercury, etc. The treatment must be applied to the cause. The General Strengthening Treatment may be adopted in doubtful cases.

Teeth . . . see also under the heading "Tooth."

Teething Troubles. (See "Dentition in Children.")

Temperature of the Blood. (See Index.)

Tetter. (See "Eczema," "Herpes," "Lichen," "Lupus.")

Thermometer. (See Index.)

Thigh-Affusion, according to Kneipp. (See Index.)

Thigh-Bone Fracture. (See "Bones, Fractured.")

Thirst Treatment. (See "Hunger and Thirst Treatment.")

Thoracic Cavity, or the Cavity of the Chest, and the Peritoneal Cavity of the Human Body. — The trunk forms, in consideration of its comparatively great extent, the chief mass of the human body. A distinction is made between the following parts of the trunk — the throat

or neck, the thorax or chest region, the abdomen or belly, and the pelvis. The posterior portion of the trunk is called

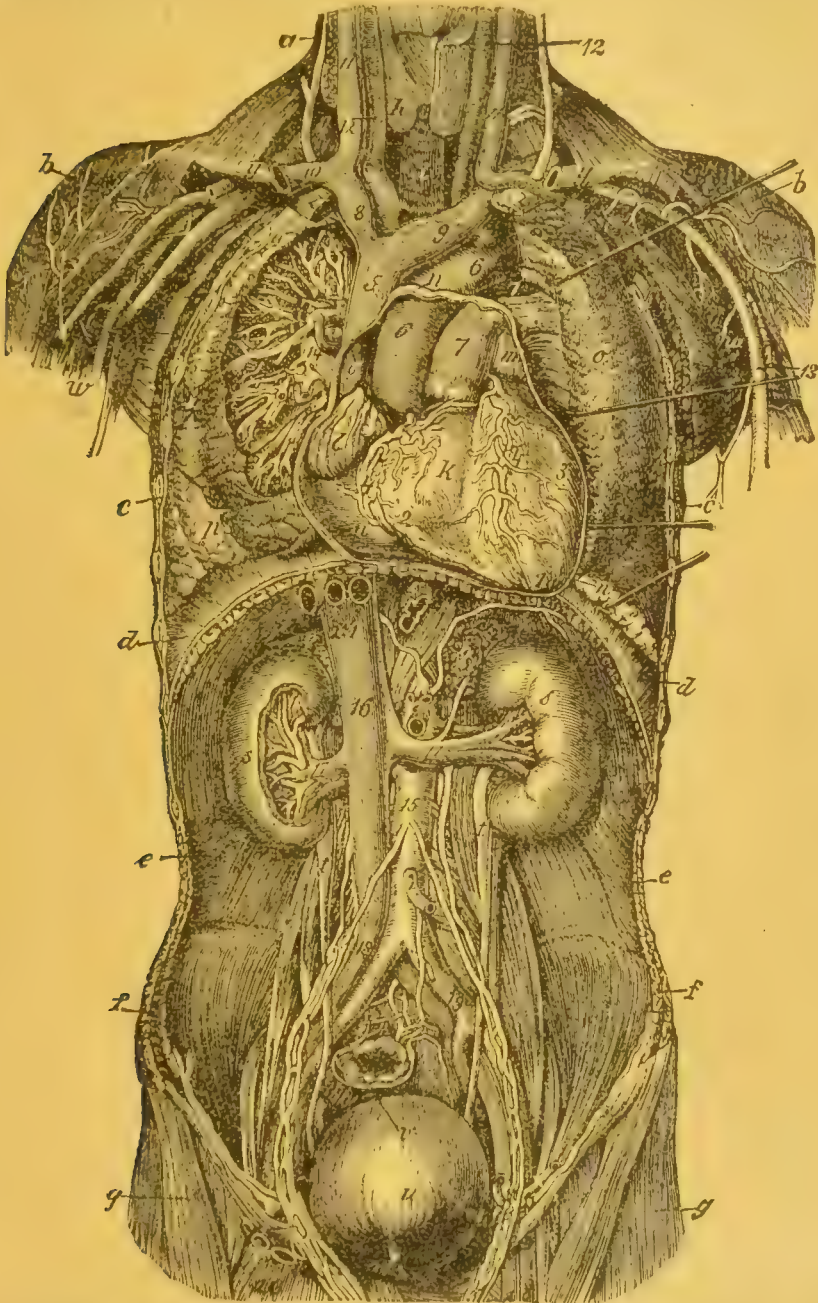


Fig. 415. The Thoracic Cavity and the Peritoneal Cavity of the Human Body.

(Open in front, the digestive apparatus having been removed to render visible the posterior wall of the peritoneal cavity.)

the back. The neck (see Fig. 415 a) is the uppermost part of the trunk; it is rounded and narrow. On the neck rests the head. The shoulders (see Fig. 415 b), the highest part of the arms, form the continuation of the neck in a sideward direction. The foundation or fundamental structure of the upper part of the body is the bony thorax or the wall of the thorax (Fig. 415 c), which encloses the thoracic cavity. The thoracic cavity is divided from the peritoneal cavity by the fleshy diaphragm (Fig. 415 d). The abdomen or belly lies between the thorax and the pelvis (Fig. 415 f), and encloses, with the wall of the abdomen (Fig. 415 e) and the epigastrium or covering of the belly, the peritoneal cavity within which the abdominal organs are contained. The continuation of the pelvis is formed by the legs. On the front portion of the neck, rather close under the skin, and reaching away from the chin, is found the hyoid, or tongue bone, and still further away is the larynx, with the so-called "Adam's apple" and the thyroid gland (Fig. 415 h), with which the air tubes, or trachea, are connected (Fig. 415 i). In the side region of the neck is found the common artery that connects the throat with the head (Fig. 415, 12), which is called the carotid artery. By the side of this artery are the inner blood vessels and its outer side; the outer blood vessels or veins descend to the thorax. Towards the arm, from the arch of the aorta, there rises into the thoracic cavity the collar-bone artery, or, as it is technically termed, the subclavian artery (Fig. 415, 10), which curves behind the clavicle (Fig. 415 y) over the first rib (Fig. 415 z), and so into the axilla or armpit, where it takes the name of the axillary artery (Fig. 415, 13).

In the middle of the thorax lies the heart, enclosed within the pericardium (Fig. 415 n), into which, at its upper or broadest portion, three large arteries are opened out. These are the upper vena cava (Fig. 415, 5), the great aorta (Fig. 415, 6), and the pulmonary artery, or the artery of the lungs (Fig. 415, 7). The heart, the size of which is about equal to that of the doubled-up fist of its owner, lies in the midst of the thoracic cavity behind the breast bone, between the two lobes of the lungs, by which it is somewhat covered at the sides; it stands in a slanting position, on the diaphragm, so that its lower portion, which has a pointed shape, the apex of the heart (Fig. 415, 1), extends into the left part of the thorax, covered internally with a thin and tender skin, the internal heart skin, or, as it is technically term, edendocardium. The

heart is completely divided into two halves, by a muscular dividing wall which extends lengthwise downwards; by this it is divided into the right and left divisions, of which the former contains venous or dark blood, and the latter arterial or bright red blood. Each half of the heart is subdivided by a diagonal partition wall into an upper and a lower division, which communicate with each other through an opening somewhat long in shape, which is found in this partition wall. Thus the heart contains four chambers, or cavities, of about equal size, and of these the two uppermost possess each a sac-like blind appendage, or auricle, or vestibule. The right auricle (Fig. 415 l), the left auricle (Fig. 415 m), and the two lower ventricles or chambers of the heart (Fig. 415, 2), are called the right ventricle, and (Fig. 415, 3) the left ventricle. In connection with the heart there are many arteries and veins (Fig. 415, 4) from below ascending through the diaphragm, the lower hollow artery (Fig. 415, 16) opens out into the back wall of the right auricle of the heart. On each side of the heart is a lung, and in Fig. 415, o the left lung has been depicted drawn outwards a little, in order to show the roots of the lung. Fig. 415 p depicts the right lung cut open, so that its blood vessels are visible (Fig. 415, 14). Each lung is covered by and enclosed within the pleura. In the smaller circulation of the blood, the venous blood flows from the right half of the heart through the pulmonary artery (Fig. 415, 7) into the two lungs. (See "Blood, Circulation of the," p. 826.) Fig. 415, 8 represents the right, and Fig. 415, 9 the left, common jugular vein. We see further, on Fig. 415 r, the end of the œsophagus (cut through).

In the peritoneum there is found, close against the spinal column, the rising abdominal portion of the aorta (Fig. 415, 15). If we look at Fig. 415 s, we see the two kidneys, of which the right one is partly cut away. On Fig. 415, 17 are the arteries and veins of the kidneys. On Fig. 415, 19 the internal iliac artery, and on Fig. 415, 18 the iliac vein. Fig. 415, 21 displays the veins of the liver (somewhat cut short), which open out into the lower aorta (Fig. 415, 16). Fig. 415 q shows us the two accessory kidneys or supra-renal organs; Fig. 415 t, the two ureters; Fig. 415 u the bladder, 415 v the rectum. Fig. 415, 20, finally, the femoral artery and femoral vein, as well as the nerve of the thigh. For further particulars, see under the headings "Veins," "Arteries," "Blood, Circulation of the," "Heart," "Lungs," "Digestion, Organs of."

Throat Bandage, according to Kneipp. (See Index.)

Throat Catarrh, Inflammation of the Mucous Membrane.—Throat catarrh owes its origin to the same influence as that of mouth and laryngeal catarrh (see articles on these), being often a complication of either or both, and, like all catarrhal affections, may be either acute or chronic. The acute is characterised by a feeling of burning and heat in the pharyngeal cavity, producing cough and slight expectoration, difficulty in speaking. Feverishness is generally absent. Examination of the throat shows redness and swelling of the mucous membrane in that organ, with a dark slimy matter upon its surface. Chronic catarrh is usually the result of the neglected acute form, and is distinguishable from it by hypertrophical or atrophical characteristics, both classes being described under the heading of laryngeal catarrh.

Symptoms of chronic pharyngeal catarrh are, continuous mucosity, tickling sensation, scraping and burning in the throat. Treatment is identical with laryngeal catarrh, excepting that in acute cases the affusions are not used, but, instead, cleansings of the fauces.

Throat, Sore, Gangrenous. (See "Diphtheria.")

Thrush.—Thrush is a deposit on the mucous membrane of the mouth, and is the outcome of the implanting of a vegetable parasite, a fungus. It mostly occurs in infants, where the mouth is not kept perfectly clean. Dirty, or half-dirty sucking-teats, bottles whose contents have turned, drops of milk which have decomposed either in the child's mouth or on the nurse's breast, conduce to this disorder. The weakly conditions of infant life are favourable to it. Adults seldom suffer from it, and only in the course of long, exhausting illnesses. Thrush develops first on the lips and membrane of the cheeks, on the tongue and gums, in the form of small painful whitish specks, or of a faint coating. Later on the membrane of the soft palate, the throat and gullet (œsophagus), is attacked. In some cases it is accompanied by pain in the body, and loose, green, sour evacuations, which occasion soreness of the surrounding parts of the anus and thighs.

The treatment is the same as for "Mouth Catarrh." Special care must be taken to ensure perfect cleanliness of the feeding bottle and its tubes, and to avoid the use of gutta-percha under any circumstances. (See "Suckling or Nursing Infants" p. 1379.)

Thrush (Aphthæ) is the appearance of flat, white spots, with a red circumference, on the mucous membrane of the mouth. (For treatment, see "Thrush.")

Tic-Doloureux. (See "Faceache.")

Tobacco. (See Index.)

Tongue, the. (See "Digestion, Organs of.")

Tongue, Inflammation of the, or Glossitis, may be acute or chronic, extended or confined to one spot. The former (diffuse inflammation) is known by enormous swelling of the tongue, which occupies the entire mouth, and projects between the teeth. In consequence of the violent pain in the tongue, its mobility is affected, and a great flow of saliva is an accompanying symptom, it flows from the corners of the mouth continually. But the exposed part of the tongue is not moistened, and it dries and cracks. Inflammation of the lymph glands of the neck and lower jaw sets up, the veins in the neck are enlarged, the face is purple and drawn, swallowing is difficult, if it can be done at all. Fever is often present. A suppurating swelling of the tongue tissue, developing into abscess, and consequent discharge, are caused, and then a cure is not far distant. In most cases the discharge is through the mouth; less frequently it turns inwards towards the neck, and the pus penetrates through a boil in the neck. Acute circumscribed glossitis generally arises from a mechanical cause, and appears with knots or lumps in the membrane. In chronic glossitis the surface of the tongue is furrowed, rough, and cracked. The appearances sometimes suggest diabetes. Œdematous swellings, caused by stings of insects; burning by hot food or drink, as well as acids, mercurial poisoning, cancer, smallpox, typhus, scarlatina, erysipelas of the face, etc., may also be specified. Sometimes there are small, white, hard, bean-sized deposits on the tongue, which arise from a chronic disease.

The treatment of acute diffused glossitis consists in taking long full baths (81° to 86° F.), or half-baths (84° to 88° F.) two or three times a day. While in the bath the patient should have a laryngeal shower-bath (p. 1177). In the intervals he should have stimulant packs on the neck and chin (68° to 73° F.), body packs (77° to 81° F.), on the calves (77° to 83° F.). Bed vapour baths (No. 1 to 4), foot vapour baths, and enemas (72° to 77° F.), followed by small cold ones (63° F.), are strongly recommended. An important factor is massage of the neck (p. 670) once or twice a day. The diet must be low and liquid,

and the patient should take lemonade, raspberry syrup, oatmeal tea, apple sauce, and almond milk, etc. The last is very useful in cases where a feeding tube is used. Should abscess set in, apply vapour compresses to the chin and neck to bring it to a head, and further follow the instructions given under "Mouth Catarrh." The rest depends upon the cause of the disease. In doubtful cases carry out the General Strengthening Treatment.

Tonsilitis, Inflammation of the Tonsils.—The glandular tissue of the tonsils is frequently the seat of inflammatory process, which may appear in simple or suppurating form. I have already spoken of the simple form of inflammation, in the article on "Throat Catarrh." The tonsils are constantly drawn into sympathy with this kind of inflammation. In suppurating forms of tonsil inflammation, serious general disturbance is for the most part the result. In many cases the fever reaches a height of 103° F. and upwards; speaking and swallowing are rendered difficult, mostly impossible; respiration is hindered, and, in consequence of obstructed nutritive supply, the patient's strength decreases. In the suppurating stage, the ailment attains its highest point, and abatement sets in with the bursting of the ulcers. The matter then flows from the mouth. In an unfavourable course the matter may find a way for itself through the chest cavity and under the tissues of the throat, disturb the blood vessels there situated, and continue its operations in the form of a fistula.

The erysipelitic form of tonsil inflammation is characterised by inflammatory decay of the tissues. The tonsils, uvula, and gums, are first whitish-grey, later on they assume a brownish or blackish colour. The breath is malodorous, the fever high, the throat aching considerably. The disease passes off, for the most part, under the clinical picture of blood poisoning. Suppurating and inflammatory throat inflammations generally last from eight to fourteen days.

The treatment of both forms consists in the application of neck packs at 77° F., changing continually every half to three-quarter hours. Should the feverish symptoms increase, steam compresses should be incessantly applied, to hasten the bursting of the abscess and carry off the inflammatory, decayed, pathological product. At the same time, stimulating body packs at 77° to 81·5° F., and calf packs at 72·5° to 77° F., should be applied to the corresponding organs. Along with

this, according to the fever height, whole or three-quarter packs should be applied daily. (Comp. II., Sec. VI.) Bed vapour baths also are commendable in many cases. Gargling, without, however, the gurgling motion, should be practised from four to six times daily, with water at 68° to 72.5° F. Erysipelitic cases require more frequent gargling, perhaps from eight to twelve times daily, and the water should have some fresh lemon juice added to it. Diet, in any case, should be mild, plain, and exclusively vegetarian. If the patient is not in a fit condition for taking sufficient nourishment, this should be administered to him in the form of almond milk enemas (p. 944, footnote). For the prevention and cure of constipation, aperient enemas at 77° to 81.6° F., together with subsequent small cold ones, at 62.5° to 68° F., should be given.

Toothache is the result of direct or indirect irritation of the nerves of the teeth, and is brought on by something wrong in the teeth themselves, or their setting (gums, bones or jawbones), or in remote pathological conditions, even constitutional ones. The main cause is a hollow tooth, whose interior is irritated by contact with air, food, inflammation, changes of temperature, etc. Indirect causes include any flow of the blood to the head, causing congestion of the jaw, roots of the teeth, and inner substance of the same. Toothache may arise in perfectly sound teeth, and it may be brought on by inflammation of the gums, roots, bones, etc., and by certain mouth disorders. But if there is a hollow sensitive tooth, it will ache as soon as there is any congestion in the head, whether it is caused by cold, indigestion, menstruation, emotion, constitutional and nourishing disorders, scrofula, rachitis, syphilis, gout, pallor, anæmia, rheumatism, etc.; and nervous disorders, neurasthenia, hypochondriasis, hysteria, etc., tend to toothache, that only awaits a good opportunity to come on. Pregnant women, persons suffering from hemorrhoids, etc., suffer greatly from it. Sometimes these persons have a tendency of blood to the head, sometimes the humours of the mouth are affected (saliva and mucus), causing accumulation of matter on the teeth, and afterwards toothache. The sensations are as varied as the causes. The pain may be gnawing, penetrating, irritating, throbbing, bearable or violent, intermittent or continuous, according to its position. Toothache occasioned by caries is generally gnawing, penetrating and local, but neuralgia is

intermittent at regular times. Congestive toothache is throbbing, connected with a feeling of pressure and great heat, rheumatic, drawing, sharp, extending in flashes to the chin, jaw, ears, bones in the chin, eye sockets and the whole head, darting from one side or group of teeth to another. It is not always easy to discover the cause of toothache, or to decide whether the inner or outer coating is at fault, whether pulpitis or periostitis is the matter. To find out, the tooth is tapped by a metal instrument. If it is periostitis, this increases the pain; if pulpitis, it does not.

The treatment of toothache must apply to its cause. Soothing remedies for the pain are given in the two preceding articles. If the toothache be congestion, or nervous debility, the instructions for "Brain, Congestion of the;" if rheumatic, those for "Rheumatism" may be followed. Rinsing the mouth frequently is beneficial, as are also foot baths of every sort, bed vapour baths No. 3 and No. 4, and enemas.

Tooth, Fistula. (See "Tooth-skin Inflammation.")

Tooth Pulp Inflammation (Pulpitis) is caused by an accumulation of foul deposits that have spread so far as to lay bare the nerve of the tooth. The daily mechanical and chemical friction creates inflammation. Pulpitis can, however, exist with caries, and may be acute or chronic, if the cause is cold, rheumatism, or constitutional disorder of any kind. The pain is very violent and haunting, sometimes throbbing or irritating, and comes on at night, especially after using intoxicants. The tooth does not get loose; the vessels are so much depressed, that they feel as if they were being screwed against the jawbones. Cold hurts the tooth very much, while warmth soothes it. As in periostitis, so in pulpitis, unless the inflammation be decreased, the disease may develop into suppuration, with violent throbbing pain, or cause the formation of gum fungus, during whose growth, however, the pith dies away. The fungus then takes possession of the hollow tooth, and no more pain is felt, nor is there any visible trouble. The pus may, however, make an outlet in the root of the tooth, causing inflammation there.

The local treatment consists in frequently rinsing the mouth, beginning at 90° F., and gradually going lower. But the water must be thrown out of the mouth as soon as it gets hot. Decayed teeth may be soothed by cleaning them with a little piece of wadding stuck in a wooden toothpick

and moistened, then inserting a tiny piece of saturated clove in the hollow, and keeping it there with a piece of wadding; soothing neck massage, directing the friction from the edge of the under jaw towards the ear. To draw the blood from the head, apply water and vapour, as advised in following article.

Tooth-skin Inflammation (Periostitis). — Inflammation of the outside of the tooth may be independent, or be communicated from the inner part of the gums. The causes are mechanical injuries, a knock, pressure, concussion, biting hard substances, also colds, rheumatism, scrofula. In consequence of swelling, the space is narrowed and the tooth is pushed out of place, so that the patient feels as if it were lengthening. As a rule the root is first inflamed, and the inflammation is seldom confined to one tooth, especially in scrofulous cases, etc. The whole row is affected, whether the teeth are sound or decayed. If the inflammation is not subdued, suppuration comes on, and it is called abscess of the tooth. It announces its appearance by increased and throbbing pain. It is a good symptom when the pus comes out from the gums. The affected tooth is often so pushed forward, that when the patient shuts his jaws and bites with the projecting tooth, great pain is felt. But if the discharge occurs elsewhere, say in the lower jaw, the cheek bone, and inward towards the mouth, or outward towards the cheek or neck, making an outlet for itself, which forms a fistula; it is caused by fungi on the teeth, and abrasions of the jaw may result.

The treatment consists in the continual application of mouth-washes, at first tepid, raising the heat each time to the highest point possible without burning the mucous membrane of the mouth. Cover the cheeks and chin with thick stimulating moist compresses (68° to 72° F.), fastened with a suitable bandage, and renewed whenever they grow warm. Rinsing the mouth with cold water is beneficial at first. General treatment consists in soothing massage of the neck (twice a day), in three or four body baths (82° to 86° F.), nightly stimulant packs (72° F.) for the neck, 77° F. body, and 77° to 81° F., to the calves; opening enemas, 77° F., followed by a small cold one, 64° to 68° F. Foot baths for both feet or one (p. 535), for the soles (p. 540), and bed vapour baths No. 4. The diet should be cool, liquid, plain, digestible and vegetarian. Narcotic and alcoholic beverages, coffee, tea, wine, beer, brandy, must be avoided, as well as using a feather pillow. But if a discharge or abscess has set up, bring it to a head

by mouth-washes of sweetened milk, laying compresses on the face, six or eight in succession, leaving them on eight or ten minutes, and by steaming the affected parts through a funnel. Lay wads of moistened cotton wool by day and night between the teeth and the cheeks, which must be renewed as soon as they grow hot. The treatment in general is the same as for inflammation of the outer coating of the teeth. If the pain is not relieved by the discharge, which may turn offensive, it is a sign that the jawbone is affected and the teeth must be extracted.

Fungi on the teeth require the same treatment as inflammation. If fever is present, follow the directions in II., Part. VI. Should caries of the lower jawbone set in, it should be treated similarly to "Bone Decay" (p. 851).

Tooth, Tartar. (See Index.)

Tooth . . . see also under the heading "Teeth."

Torpor, Torpid Fever. (See Index.)

Trade Diseases.—Although we understand something rather different, according to the literal and limited meaning of the term "Trade Diseases," from that of Professional Diseases, if we only include in the former such illnesses as arise from injuries inseparable from the trade spoken of, and under the latter rank only such as are confined to the one occupation, excepting those which result from an uninterrupted practice or action, I shall have no hesitation in treating both classes of disease in one and the same article. So far as, in a wider sense, we may consider occupation and profession as identical, either carried out under unhealthy conditions (whether it be actually included in the performance or in surrounding circumstances of his duties) exercises an injurious effect, which, according to the nature and degree of the injury, the individuality, and similar circumstances, may result in any sort of disease. First of all, a man must, as long as his work or his occupation, whatever it may be, is being carried on, aim at two things for the good of his health. First, that he should assume a posture which does not injure him; second, that he should breathe good pure air.

A sitting posture is indispensable in many occupations, in such trades as the following: tailors, shoemakers, weavers, watchmakers, draughtsmen, accountants, clerks, teachers, seamstress, and machine cleaners. The effect of this sitting is defective respiration. The blood is imperfectly purified from carbonic acid, the circulation is retarded, the

substances dwindle, and the abdominal organs are overcharged with blood. As a rule the air of a room only is inhaled, and that an insufficiently ventilated one. The consequences are hemorrhoids, disorders of the stomach, constipation, nervousness, hypochondria, melancholia; in women there may be irregularities of menstruation, leucorrhœa, troubles during pregnancy, bad confinements. Not infrequently displacement of the bones, spinal deformity, injury to the chest, shoulders, and pelvis. Shoemakers and weavers, who have continual pressure against the stomach, frequently suffer from hardening of the stomach. To obviate these ills, persons of sedentary occupations should in their spare time occupy the very positions their occupations prevent in working hours. They should avoid all pressure on the blood vessels by light clothing, belts, bodices, etc., change their position as often as possible for a standing one, accustom themselves in leisure hours to standing upright. Every morning on awakening, rub the body (Fig. 198) and go through the exercises No. 1 to 4 of the Simple Active Motions of Curative Gymnastics. In the evening, instead of remaining in close rooms, devote yourself to recreation in well-ventilated ones. Breathing exercises (see further) in the open air, skating in winter, swimming in summer, are admirable if time permits, as reviving the circulation. Sundays and holidays should not be spent, by those condemned to stuffy occupations, in the house at all, but, as far as weather permits, in the open air. You should indulge only in digestible food, not too highly flavoured and not fat; avoid coffee, beer and wine; pay attention to the bowels, and keep the skin wholesome by frequent ablutions, baths (full and vapour), and by frequent changes of under-linen. The greatest injury is felt by those condemned to bend over their work continually; the eyes grow short-sighted, the spine curves forward, and if the posture is one-sided, sideways as well. Clerks, writers, teachers, copyists, etc., should pay great attention to maintaining an upright position at the desk. It is well to begin with school children, to prevent the increasingly acquired mistake of a stooping position while writing, and from acquiring bad habits for life. Children weak in joint and muscle are frequently victims either of an oblique curvature of the spine, or of a side and back curvature in consequence of sitting badly while writing. If the front edge of the chair or form on which the child sits be so far away from the table that he can stand up

easily without pushing it back, he will have to bend his head and body too far forward, and support himself on his chest and arms. Generally the right elbow is pushed far on to the table, and the left hangs down, so that the right shoulder is naturally raised. If the child writes at too high a table, or lays his copybook too far off, to the right, you will see the same distorted position. Look at the bare back of a writing child seated thus, and you will see the spine appears almost as curved as in curvature of the spine. Children with



Fig. 416. Curvature of the Spine (right) caused by faulty position whilst writing.

a predisposition to rickets may be sure of stooping or becoming round-shouldered if they persist in sitting and writing day after day with a bent spine. As a rule, no other consequence ensues than the fact that, after years of stooping over this writing, his parents and teachers are always calling out, "Now, don't stoop!" It is all of no use, for the child is simply unable to assume any other posture; and if, in obedience to his teacher he does sit straight for a minute or two, unconsciously resumes his first and undesirable posture when the command again rings out—either because habit has already become second nature, or because a slight

curvature of the spine has already begun. Corsets, belts, bandages, and similar mechanical instruments of torture, are not only quite useless, but they actually increase the trouble by pressing on the healthy internal organs and preventing their functions from being carried out. Only such treatment as goes to the root of the matter can be of any benefit.

The right position of the body is obtained in following the instructions here given, and they will be found efficacious, not only for children, but for everyone whose occupation necessitates much sitting at a desk.

1. The seat of the chair or form occupied by the writer must be so far from the table or desk that the pit of the stomach is on a level with the surface of the table.

2. The seat must be pushed so far forward, that its front edge is one to one-and-a-half inches under the table. The edge of the table should extend the same distance over the seat, so there must be no space left between seat and desk.

3. Two-thirds of the fore-arms must rest on the desk, the elbows should be quite free.

4. The top part of the paper on which he writes should lie a little to the left, so placed that the bottom lines of the writing run parallel with the edge of the desk.

5. The body must be held erect, and the head only bent forward.

The eyes should be about thirteen inches away from the paper. The chest does not touch the desk at all if this position be maintained. This posture will be further assisted, if the writer can rest the lower part of his back against the



Fig. 417. Correct Attitude of the Body whilst writing.

back of his seat. The seat therefore should not be broader than the length from the back of the knee to the back. On ordinary chairs, a cushion can be fastened across the back, to raise the writer, but only when the width of the seat corresponds with the writer's thigh measurement.

6. Both feet must rest firmly on the floor. If they cannot reach the floor, a footstool should be used, but this again must not be high enough to raise the front part of the thigh from the seat. The legs must not be crossed, either at the knee or at the ankle, nor should the foot be drawn back under the chair.

7. Notice that the light falls from the left on the writing. Window and lamp must therefore be to the left.

Fig. 417 represents the right position in writing, in which the preceding rules are followed.

In reading, too, many people assume a wrong position. The correct one is to rest the back and shoulders on a (backward) sloping back, so that body and thighs form an obtuse angle. The light should fall over the back and shoulders on the book, which should only be just as far from the eyes as the sight requires. By taking this position, not only is the reader out of the glare of the light, but preserves his sight and rests his back, while giving every facility to the circulation of the blood.

The standing posture is maintained uninterruptedly by printers, compositors, locksmiths, painters, carpenters, wheelwrights, bricklayers, cabinet-makers, shopmen, teachers (who stand at their desks), cooks, waiters, footmen, laundresses, even lords-in-waiting and others in attendance on a sovereign, are obliged by court etiquette to stand for hours together. In standing, the continuous, partial, and excessive straining of the muscles induces over-fatigue, trembling and pain in the muscles, as well as clots of blood in the legs, dropsical affections of the feet, indigestion, want of appetite, flatulence and acidity, and nausea after eating. It is a great help to take advantage of any opportunity to sit or lie down, and, while recumbent, to rub the legs, first with water and then without; to take as much exercise as possible in the open air daily, and to practise No. 1 of the Simple Active Movements of Curative Gymnastics, especially those exercises which strengthen the arms and chest muscles. Also daily massage of the legs, daily ablutions (77° to 81° F.), weekly, three or four foot vapour baths, and one or two full vapour

baths have a good effect in treating paralysis of those parts of the body affected by long-continued standing.

The stooping and kneeling postures adopted by mountaineers, stone breakers, carpet layers and scrubbers, have nearly the same bodily effects as sitting. These are stoppages in the circulation, congestion and exhaustion of the abdominal organs, curvature of the spine, etc. The knee-joint often becomes inflamed. To prevent this, the instructions given under "sitting posture" will be found beneficial. For those who are forced to kneel constantly, a knee-pad, and frequent bathing, say two or three times a day, of the knee in water, 64° to 68° F., followed by massage of the knees. Weekly use of three or four leg vapour baths, and subsequent massage of the joint, are very efficacious.

Over-exertion of the entire body occurs frequently among labourers, hodmen, mountaineers, sailors, foundrymen. The injuries of over-straining the whole muscular system, or a part of it, is that certain organs — especially the brain, the heart, and the lungs — are greatly overcharged with blood. Quite apart from the condition arising from want of sufficient rest, and, above all, of sufficient nourishment of the machinery of the body in proportion to its growth, strength is only maintained when continual exercise of all the organs, by a judicious division of labour and recreation, is adhered to. Attenuation, general debility, weakness, diminished powers of resistance to disease-causing influences, such as an infection, and other symptoms, are the consequences of over-exertion of the muscles.

Besides, the increased consumption of oxygen in the body during excessive exertion necessitates deep inhalations, by which a dilation of the lungs is occasioned, because the worker often neglects to exhale the air as freely as he inhales it. In consequence of the chronic overcharging of some of the organs, inflammation is set up in them. Hemorrhage of the lungs, congestion of the lungs, weakness of the pleura (asthma, etc.), certain forms of heart disease. Carrying and lifting heavy masses brings about rupture of the intestines and tearing of the blood vessels. Moreover, men and women obliged to overwork themselves age very quickly. All who are obliged to exert their strength excessively and frequently must beware of renovating their energies by stimulants, such as brandy, coffee, or anything of the sort; they should rather, if possible, limit their hours of labour, sleep in the open air,

eat at mealtimes digestible, nutritive, and wholesomely-cooked food (milk, fruit, eggs, meat, fish, etc.); avoid working directly after dinner; rest, when the blood throbs, the muscles tremble and the head swims, in a recumbent position, and take a day's rest, tepid baths (91° to 95° F.), and follow them up by gentle massage.

Over-straining of single parts of the body, as partial exertion of single muscles, for instance, the muscles of the arm in swinging a hammer, soon occasions dislocation and excessive growth of the strained portions at the expense of the entire organisation.

In your leisure moments make frequent use of those muscles which are not used, or very little, in your working hours.

Straining of the respiratory organs is usual among teachers, preachers, public speakers, actors, singers, town-criers, hawkers, dancers, wind-instrumentalists, etc. Catarrhal troubles in the throat and windpipe, hoarseness, rush of blood to the brain, and heart disease, are often the consequence. To obviate these numerous ills, avoid talking immediately after rising and after meals, speaking or singing for any length of time, taking either very hot or very cold food and beverages, especially just after any great exertion of the vocal organs. It is well to harden the throat and chest by avoiding overheating clothing, especially by exposing the throat in the winter. The practice of breathing exercises (see these), and a general hardening, are strongly recommended, as well as daily practice of Course No. 8 of the Simple Active Movements in Curative Gymnastics.

Straining of the sight is incidental to teachers, clerks, proof-correctors, engravers, watch-makers, mechanics, compositors, seamstresses, lace-workers, etc. The sight is also injured by microscopic work and examination, the fierce furnaces for the use of metallurgists, smiths, and locksmiths; by defective intermittent flickering light, by writing and reading in the twilight, by immediate changing over from darkness to light, and by glasses that are not suited to the failing eyesight. By way of prevention and alleviation of inflammatory and other disorders, adopt the following measures: After meals do not strain the eyes; if your occupation be sedentary, vary your position as frequently as possible; take open-air exercise, practise the Motions of Course No. 1 to 3 of the Simple Active Movements in Curative Gymnastics, and adopt massage

of the eyes (Fig. 188) and of the neck (Fig. 100), foot vapour baths (137° F.), walking barefoot, soothing foot baths, and nightly massage and packs to the calves of the legs. (See also the article on "Eyes, Care of the.") Above all keep the feet warm, and pay attention to the daily opening of the bowels.

Over-pressure of the brain is usual among head-workers, teachers, professors, writers and literary men. Through activity of the brain, straining the sight, sedentary habits and neglected respiration, not only congestion of brain and eyes, but also an unhealthy general condition is a consequence, which makes itself felt in defective circulation, congestion of lungs and liver, defective blending of the blood, indigestion, constipation, hemorrhoids, tendency to catch cold, general debility, palpitation, want of nerve, short-sightedness, weak sight, headache, and other troubles. Mental work is most injurious when carried on too long, without the necessary pauses and sleep, and when it is resumed in the morning, immediately after rising or after meals. Aimless and irregular brain-work is just as bad as over-taxing the brain with too many and too varied subjects. Every brain-worker, in whatever way his energies are directed, is in a position which favours his neglecting the adoption of the two preventives of the injuries incidental to his calling—bodily exercise and breathing fresh air. He should spend part of every day in the open air, ventilating his study meanwhile; accustom himself to a certain division of his time and his work; vary his own work at the desk occasionally by a walk up and down the room, and accustom himself to study either sitting or lying down, and work by day and not at night. Further, he should adopt a light digestible regimen, avoid coffee, wine and strong ale; observe daily habit of going to stool; keep his feet warm, his head cool, and take care of his skin by daily ablutions at 77° to 81° F., and tepid baths twice or three times a week, and above everything avoid excesses of any kind. Practise daily Motions of Course No. 1 of Active Curative Gymnastics, as well as breathing exercises in the open air.

Straining of the aural nerves is common among artillerymen, coppersmiths, pyrotechnists, millers, foundrymen, and musicians, etc. It originates in consequence of loud and constant noise, and is shown by ringing in the ears, buzzing, pressure, dizziness, swimming of the head, headache and

depression, etc. To prevent the bursting of the tympanum, it is advisable to open the mouth during a sharp, sudden explosion. It is a good thing, too, to put a piece of good pure cottonwool in the ears to deaden the sound of a loud report. Relieving treatment for the injuries caused by a continual loud noise is similar to that enumerated under "Straining of the Sight," (p. 1426), as it draws the blood away from the head.

The serious consequences of exposure to too great a heat are felt by furnacemen, firemen, and glass-workers, bakers, cooks, and sometimes soldiers on the march in hot weather. If the atmosphere is dry in their heated workshops, the consequences of breathing it are oppression on the chest, narrow-breastedness, shortness of breath, and other symptoms of defective respiration. If it be hot, yet damp, or even impure, its injurious effects are still greater. If any parts of the body are particularly exposed to it, a congested condition may be the result. From a very heated head, dizziness, inflammation of the brain, swimming of the head, headache, etc., as well as general nervous affections, and gout in the head, may ensue. As a consequence of the head being overheated, the rest of the body is susceptible to cold, rheumatic pains and other illnesses. Everybody whose occupation is carried on in very high temperature should insist upon long intervals of rest, to allow the body to recover from the effects of the excessive heat. In these intervals they should take a bath, 68° to 70° F., or a sponge bath, 80° to 84° F., moderate exercise in the open air, where the atmosphere is fresh and pure. River bathing is also beneficial in the summer. But in winter as well as summer, it is very beneficial to wash all over in water at 73° to 77° F., just before going to bed. The working clothes should be light and easy, and, as far as the upper part of the body is concerned, should be a pure wool garment—shirt, vest, or sweater, and the thirst, inevitable in the work, should be allayed by water taken in very small draughts, to which may be advantageously added the juice of a lemon. The use of coffee or brandy is not advisable, as these beverages merely increase the trouble. On the other hand, a little mild beer, during the intervals of rest, is recommended. The diet should be very nourishing, but easily digested, so that the waste caused by perspiration be made good as soon as possible. That these hot workshops should be carefully ventilated is a matter of course.

Among the victims of exposure to the cold in winter, often combined with wet, we may mention labourers, fishermen, sailors, soldiers, coastguardsmen, postmen, etc. Rheumatic or gouty troubles, catarrh, frostbitten limbs, are a general result. People exposed to great cold should protect the exposed parts of the body from frost by following the instructions given under the heading "Frostbites," p. 1048. Their food should be very nutritious, and contain a great proportion of fat.

Those who are exposed to an impure and dusty atmosphere are found, alas, amongst a numerous class of workers! I may mention tailors, millers, bakers, hairdressers, wigmakers, starchmakers, rag-pickers, wool-combers, wool-sorters, clothweavers, workers in tobacco, stone-masons, sculptors, plasterworkers, poulterers, cutlers, rope-makers, gold-beaters, gilders, workers in metal, jewellers, masons, joiners, turners, coalheavers, miners, mountaineers, road-sweepers, carpet-beaters, brush-makers, furriers and hat-makers. The dust inhaled consists of the most varied combinations and of many kinds, and lodges in the mucous membrane and lung-cells, clogs the latter, and wherever it penetrates and settles, sets up inflammation and its effects. Dust also gets into the eyes, where it occasions inflammatory and catarrhal affections. An infinitesimal proportion of the dust that enters the lungs ever leaves them again, and even inhabitants of towns free from dust, and not themselves engaged in any dusty occupation, possess, according to the opinion of Dr. Reclam, by the time they are thirty, as much as about sixteen grains of dust in their lungs, of which they will never rid themselves, but which amount increases year by year, with obvious injury to the lungs. Dust-consumption is well known among stone-cutters, plaster-workers, cotton-spinners, wool-carders, wool-sorters, workers in flax, etc. Inflammation of the lungs and tuberculosis are quite general in these trades. Defects in the blood constituents, or similar disorders; insufficient or poor food, excess of any kind; overheated, badly ventilated rooms, equal the above-mentioned causes in developing their injurious effects on the constitution. And beside the specified diseases, chronic catarrh of the pulmonary organs, dilatation of the bronchial tubes, cough, hoarseness, indigestion, attenuation, weakness, etc., are frequently the precursors of an early death. Foundrymen suffer a good deal from the so-called "iron-lungs" ("Sidorosis," from the Greek, sideros, iron), in which the lungs are filled with tiny particles of

iron. Coaldust and tobacco vapour appear to be the least noxious to the pulmonary organs, as among workers of these proportionately fewer cases of lung disease occur. A cancerous disease is sometimes set up by the collection of fine coaldust on the bodies of unclean coal-men. Cancers may be sometimes observed on the lips. Bakers suffer from an eruption caused by the flour dust.

To limit the injuries caused by the inhalation of dust, the following precautions may be of service. Above everything ventilate the workshop, by means of appliances suitable for this purpose, as well as by opening the windows and doors frequently during the intervals for meals. Should circumstances permit—the rooms not being on the ground-floor, or where a night-watchman is kept—ventilate the place in the same way at night. A fair amount of moisture is obtained by sprinkling the floor with water; this confines the dust to the floor, and the evaporation binds the particles floating in the air, which fall by their own weight. Open-air workers should be careful to place themselves in such a position that the dust flies away from them. Heavy moustaches hanging over the lips are the natural and best dust catchers, far more efficacious than masks, or bands of wire gauze and “patent” respirators. The injurious effect of dust on the eyes, which shows itself later than that on the lungs, may be warded off by the workman assuming a special position of the head, by wearing glasses of which the edges are surrounded by a sponge constantly kept damp, by bathing the eyes daily in water, 82° to 86° F.; by applying stimulant compresses nightly to the eyes, 77° to 82° F.; by frequently washing the eyes in water at 86° to 90° F., etc. The effect of the dust on his skin can also be counteracted by sponging the whole body with water at 73° to 77° F., by frequent vapour baths, shower baths, tepid baths, etc. He should also rinse the mouth and sniff water up the nostrils, and apply nightly stimulant neck, body and calf compresses. Make use of every free moment to practise “open-air breathing exercises.” (See reference.)

The treatment for the rash peculiar to bakers is found under the heading “Eczema.”

Complete rest at night, a nutritive digestible (mainly vegetarian) diet are recommended as preventives of injuries arising from the inhalation of dust.

The symptoms of “Injurious effects of Inhaling Poisonous Dust, Gases, and Vapours,” are found under the headings

"Suffocation, Treatment for," and "Arsenic, Lead, Phosphorus and Mercurial Poisoning." (See also "Poisoning.") The rules for treatment in cases of trade poisons are essentially the same as those given in treating of "Injuries arising from the Inhalation of Dust-laden Air." The occupation of leisure time in breathing pure air, careful ventilation of the workshop, taking no food into it, rinsing the mouth before and after every meal, washing the hands and brushing the nails before every meal, nutritious, digestible food, and avoidance of any sort of excess. These are the chief precautions to be observed. Workmen using mercury should protect the skin of the hands by wearing thick cotton gloves, painted over with one or two coatings of liquid guttapercha, during their working hours.

Inflammation of the spleen attacks butchers, shepherds, herdsmen, furriers, horsehair workers, woolshearers, wool-sorters, cloth-weavers, etc. Glandular disease attacks veterinary surgeons, drovers, coachmen, ostlers, and butchers. The prevention of this class of disease consists in strict sobriety, and great caution in avoiding exposure to poisonous influences.

I cannot close this article without offering a word of urgent warning to employer and employed. Every workman should make it his business to know all about the poisons with which he has to deal, and their possible danger to himself, in order to take the necessary precautions for the protection of his health; and everyone who employs workmen is under an obligation not only to provide this instruction, but to provide special precautions and appliances for the care of his workmen's health. Regard for the working man's welfare is the best means of attaining the prosperity of a nation. By special hygiene for the worker, not only do humanitarian principles carry out their own practical work, but sincere and hearty efforts for the good of the workman alone are able to bridge over the gulf which divides labour from capital. We best solve the great social question when we recognise a brother in the simple labourer, and treat him with consideration, and take as much care of his welfare in sanitary details as of our own.

Travail. (See "Birth.")

Treatment, Cooling. (See Index.)

Tremors. (See "Palsy," "Brain and Spinal Cord, Inflammation of the.")

Trichinæ.— This is a transparent clear worm, shaped like an earthworm (*trichina spiralis*, which means spiral-shaped hair worm). It is only visible under the microscope. Its chief resort is in the pig, and it is through eating pork that it is brought into the human body. How the pig gets it is an open question. The parasites are found in immense numbers in lean meat, in the voluntary muscles of the pig, (but never in bacon, in the sinews, or in voluntary muscles), in



Fig. 418. Young *Trichinæ*, curled in the muscle cells.
(Sixty times life size.)

every possible position, at full length, bent, rolled up, or in serpentine coils, or else in an oval capsule, thronged together, rolled up spirally or in many layers. The number in one person or pig is incredible. Professor Leuckart found, on examining a piece of human flesh, that in one milligram $\frac{1}{1000}$ of a gram) there were ten of these capsules, which represents 20,000 on a piece of meat weighing two grams. Those found in flesh are called muscle trichinæ, to distinguish them from those parasites that develop further after being ejected from the bowels. The last are called intestinal trichinæ. In the pig's muscles they are either free, like newly-arrived young trichinæ (Fig. 418), or else coiled up like old ones (Fig. 419). The capsules exuded by the muscles, and which enclose the parasites like a foreign substance, are partly calcareous and therefore firm, and envelop the parasites closely. If meat containing trichinæ be eaten, the acids of the sto-

mach will liberate them from their prison, and they are once more free. They impede digestion, crawl into the intestines, and develop so rapidly, that in three or four days their numbers are doubled. Male and female may be distinguished from each other by the testicle and ovary. They attain a length of about $\frac{1}{30}$ of an inch. The females, which greatly predominate, and are about one-third longer than the males, produce countless eggs. In these the young develop; five or six days after their progenitors' entry into the intestine they issue forth alive and active. They perforate

the walls of the intestines, and some penetrate into the cavity, others between the membranes of serous duplicates of the skin; attach themselves to the intestines, wander into the windings, penetrate into the diaphragm and abdominal muscles, and distribute themselves through the body, following the course of the other muscles. If it be remembered that one female repeatedly produces from seventy to a hundred living young, which all begin to crawl about, an idea may be formed of the tremendous number of worms one person may have within him. They prefer the neighbourhood of the loins, of the diaphragm, the mid-ribs and the muscles of the neck, as well as those of the eyes, the tongue and the throat, but they are never found in the muscles of the heart. They are not found in such numbers in the extremities—the further from the trunk the fewer.

Their wanderings are generally terminated in twenty-four hours. In the place where the young trichinæ attach themselves, a discharge and swelling all round is caused by the irritation, the irritated muscle-fibre becomes a pulverized mass, and the sheath enclosing the degenerated fibre now contains the worm as well as the powder. Though the parasite is only about 0·1 millimeter when first hatched, by the second day of its life it is double that length, and in two weeks has attained its full growth, three to four millimeters. In another five or six weeks its imprisonment in the calcareous cell will be complete. Here it remains, until, like its progenitors, it is released, and assumes the filthy function of an intestinal worm. These creatures remain in the intestines some weeks after

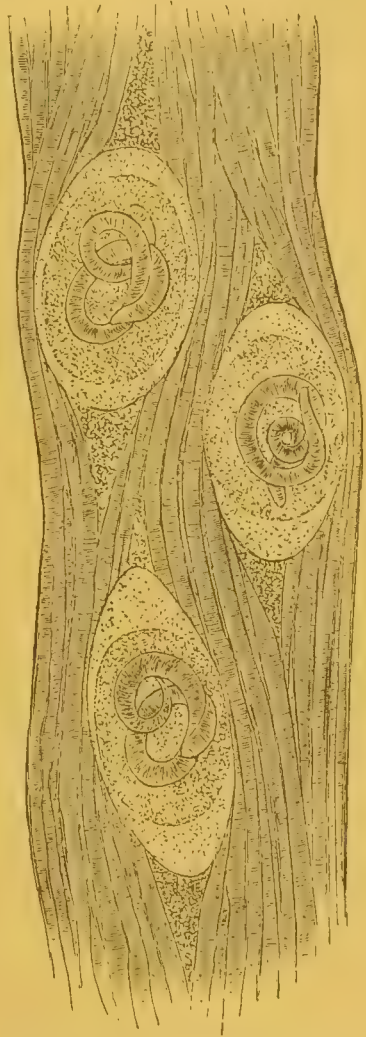


Fig. 419. Coiled Muscle Trichinæ.

(Enlarged 60 times.)

breeding and despatching their young. Then they die unless their victim has already done so. If anyone has eaten trichinosed pork, he suffers from a malady called trichinosis, which often proves fatal. Although some days may elapse before the young worms hatch and penetrate the intestines, yet sometimes a few hours suffice to bring out the symptoms. They are, violent stomach pains, nausea, acidity of the stomach, great lassitude and weakness, and vomiting of mucus and bile; colic, diarrhœa, with thin, first brown, then yellow evacuations, and more or less fever. If a particularly large number of worms have been received into the system, the first stage ends fatally in a short time. The patient has symptoms resembling cholera, and dies. The second stage occurs when the young worms find their way into the muscles. Rheumatic pains and stiffness in the muscles; watery swelling of the face, especially the eyelids and the membranes of the eyes, and other parts of the head, are followed by decrease of muscular power, increasing stiffness and hardening of the muscles, and finally paralysis of the same; difficulties in swallowing and breathing, profuse, weakening perspiration, dread of light, deafness, hyper-sensitiveness of the skin and high fever. The fever arises continually, with a little lowering in the morning. It is caused partly by the inflammation of the muscles, and partly by the infusion of infection into the blood. The sickness is fatal (with typhoid symptoms), death ensuing in the fifth week, with delirium and incessant convulsions; or it may terminate favourably, if the worms fall victims themselves to the action of digestion while the young ones are still enclosed in the capsules.

The treatment should aim at reducing the temperature, or in combating any prominent symptom. It should be that given in II., Part VI., under "Treatment of Fever," as well as "The Care of the Sick" (I., Chap. 38). Specific remedies for destroying trichinosæ that have once got into the stomach and intestines, and are included in the further development, or for curing the disorders they cause, are not to be obtained either from the disciples of the Natural Curative Treatment or from medical science. If anyone has reason to think he has eaten diseased pork, the best thing he can do is to get rid of it by an emetic or aperient, and drink olive oil or salt water in quantities, as instances have been known of the worms perishing in a quarter-of-an-hour. But even these remedies are uncertain. There is only one certain way of

avoiding trichinosis, and that is, never to eat pork that has not been microscopically examined by a specialist.

Trusses.—The truss serves the purpose of preventing the protrusion of a portion of the viscera out of the external hernial orifice (that is to say, for keeping in its place any part of the intestine or internal organs which would otherwise protrude from the orifice of the rupture). The truss consists of a ball or pad, and of a girdle. The pad forms that part of the bandage or truss which is to close up the hernial orifice, the girdle is the strap that goes round the body so as to hold the pad in its place. In order to prevent the slipping of the truss upwards, it is provided with what is called a "thigh strap." This is fastened or clasped to the back part of the girdle, rises between the legs upwards, and may be made attached to the pad itself. (See Fig. 420.) Trusses in which the pad closes the hernial orifice by means of a spring are called elastic trusses. If the truss has only a pad for the closing of a rupture on one side of the body, it is called a single truss (see Fig. 421); and on the other hand, if there are two pads for the closing of a rupture on each side of the body, then the truss is called a double truss (see Fig. 422). A distinction is also made between navel (umbilical) trusses, femoral trusses, and inguinal trusses.

Truss Suspender.—In most disorders that attack the male member, urinary duct, or bladder, and set up inflammation in the scrotum, or testicles,

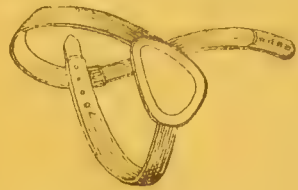


Fig. 420. Truss with thigh straps.

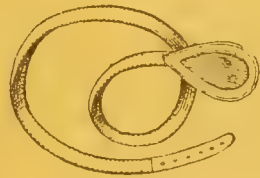


Fig. 421. One-sided Truss.
(With spring pellot.)

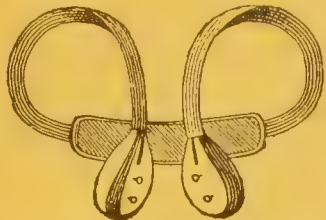


Fig. 422. Double-sided Truss.
(With two spring pellots.)

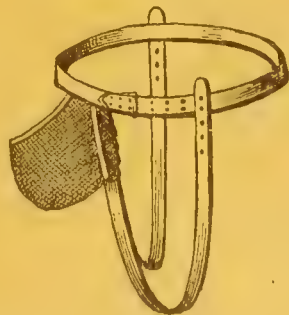


Fig. 423. Suspensory Truss.

it is usual to wear a truss or suspender (Fig. 423). The scrotum is protected by it from pressure, and is relieved from carrying its own weight. The appliance consists of a pocket for the scrotum, with an opening for the penis, a belt and two straps.

Tuberculin. (Refer to the Index.)

Tuberculosis, Tubercles.— Under the name “tuberculosis” we understand an illness which is characterised by the presence of tubercles. The word “tubercle” (Latin, *tuberculum*) means small swelling or pimple. We owe the knowledge of that which we nowadays call tubercle to an English doctor named Bayle, who lived at the beginning of the century, and who found that the cells of the lungs of all those persons who had died of phthisis contained small grey or white pimples, about the size of a pin’s head, or grain of millet, so that people soon surmised that these pimples must have some connection with the cause of phthisis. While the pathological changes in the tissue of the lungs of persons suffering from phthisis are of many kinds, so that no two diseased lungs are exactly alike, yet one always finds these pimples in the tissue of a lung affected by phthisis. These pimples, which we will in future call tubercles, consist of cells which may be of two different kinds: firstly, the lymphoid cells, that may be identified by their white blood corpuscles and mucilaginous corpuscles; and secondly, the epithelium cells, of which the cells resemble a network in their composition. The tubercle only needs a short time for its formation, and soon undergoes a change that occasions its softening. On becoming soft, its cellular mass is changed into a mucilaginous white mass, sometimes also in a fine granular mass. This process is called coagulation. The more tubercles are together, the more extensive is, as a rule, the softened spot. However, only a small part of the tissue can be destroyed during this process; the tubercles alone are not sufficient to cause the formation of the larger hollow spaces (so-called cavities) in the lung which are found in cases of advanced phthisis. Mucilaginous inflammation of the tissues of the lung, that also bring on a coagulated softening (coagulated pneumonia), play the principal part in the destruction of the larger tissues. The tubercles either shrink, or those that are already coagulated harden and change, through mixing with lime-salts, into a chalk-like mass, that then remains in the tissues without undergoing any further change. In the more

favourable cases, shrinking, hardening, and calcifying shows that a certain healing is taking place; therefore it is not seldom that one finds, on dissection, signs in the tissues of the lungs of persons who died at an advanced age, that they were healed of tuberculosis in years long since gone by.

The tuberculosis of the lungs (comp. the article "Lungs, Consumption of the" [p. 1201]) represents the most general and most important, but by no means the only form of tuberculosis. In every organ, in every part of the body, tubercles may be seated. One speaks therefore of tuberculosis of the glands, when the lymphatic glands are the principal seat of the tubercle, and so on, always referring to the organ or parts affected. Thus one may find cases of tuberculosis of certain bones, joints, and intestines, and also of the peritoneum, the throat, and the windpipe, etc. A particularly bad form of tuberculosis is the tuberculous inflammation of the soft brain-membrane (*Pia Mater*) (see p. 885), as well as that of the soft skin of the spinal cord (see p. 1357). It has also been discovered that even tetter or lupus is caused by the tubercle-bacilli having got into the diseased tissue of the skin and bones, so that these disorders have also a tuberculous basis. Scrofula, which is considered the sole cause of lupus, is nothing but a glandular tuberculosis. Professor Robert Koch, the discoverer of the tubercle-bacillus, found it not only in the phlegm from the lungs of those suffering from tuberculosis, and in the tissue of their lungs, but also in the lymphatic glands in the spleen, in the kidneys, in the secretions from the digestive organs, from the mouth, from the throat, and from the windpipe, etc. Even in the urine and in the contents of the intestines of those suffering from tuberculosis was the noxious bacillus discovered by Dr. Koch. As the bacilli reach all the organs and parts of the body through the blood and lymph vessels, it is evident that the tuberculosis, when of long standing, creates not only one but many diseased places in different parts of the body. Therefore tuberculosis remains local to a certain degree only at the commencement of its appearance, though it causes the whole organism of the body to feel ill, and it should be understood that only after a certain time does it gradually become a chronic illness. Only the so-called miliary tuberculosis (comp. the article about this) is distinguished by its intensely feverish, infectious character, and represents the only galloping acute form of this disease.

The treatment of tuberculosis requires the employment of the General Strengthening Treatment. In both forms of tuberculosis, wherever a localisation of the disease takes place, refer to the single article in the Third Part of this book, in which advice for the treatment and cure is given.

Typhlitis, or Inflammation of the Cæcum. (See "Intestine, Catarrh of the, Acute.")

Typhus, Abdominal Typhus, Typhus Fever. — By the name typhus fever one means a feverish, infectious illness, that is either sporadic (in single cases), or epidemic (where a number of persons are affected), and of which the most prominent clinical characteristics are intensively feverish symptoms in the nerves (typhus fever), as well as feverish symptoms in the intestines (abdominal typhus). This disease is contagious, typhus poison being present, which is caused by a certain bacillus (typhus bacillus). This latter is found in the intestines, especially in the intestinal abscesses which are created during the illness, but it may also often be found in the kidneys, spleen, and liver, etc. The spreading of the contagion from one individual to another is brought on through the lungs and intestines, the stools of the patient being particularly contagious, so that anyone who is in the vicinity of them may easily contract the disease. It often happens also that the poison of the disease spreads through the miasma given off in places where large numbers of decomposed animal substances are found, and where the bacilli are then communicated to the atmospheric air and to the drinking water. In large towns, where there is generally a greater or lesser accumulation of decomposing animal matter, both in and on the ground, typhus frequently breaks out when the weather is damp; also near the banks of rivers when the water retires after overflowing the land, leaving the marshy places to dry up, because the ground then begins to give forth an effluvia. (Comp. I., Chap. 37, "Preventions and Precautions in Epidemics.") The susceptibility to the typhus-poison varies. The middle-aged are most likely to catch the disease. Seemingly strong, well-nourished persons, drinkers, as well as persons who are apt to eat more than is good for them, are particularly liable to be attacked. It is true that the poorer classes rank first among the victims of this disease, but this is due to the insanitary mode of living to which they are generally exposed.

The period of incubation in typhus lasts about from two to four weeks, and runs its course without any special signs of illness. But gradually the premonitory period, that lasts about a week, sets in, and with it come symptoms of exhaustion and collapse, loss of appetite, disturbed sleep, headache, vertigo, and shifting pains in the limbs, etc. When the illness sets in, it is introduced by a feeling of coldness and shivering, which is followed by a certain degree of bodily heat and fever. The course of the illness is divided into three periods. During the period of development, that lasts about a week, all the symptoms mentioned in the premonitory period increase in violence. Sleeplessness and loss of appetite increase, the exhaustion is greater, and the pains in the head more violent. There is a great thirst, the tongue is coated, the stools irregular, the skin as well as the lips are parched and hot, and the pulse is full and quick (ninety to a hundred beats a minute, or even more). The fever, the rise and fall of which during the course of the illness affects the mucous membrane of the intestines (which we will mention further on), is as follows during the first week: The temperature of the body is about a degree higher in the evening than it was the same morning; but on the morning of the following day it is 1° F. lower than it was the evening before. For example, if the temperature in the armpits is 104° F. in the evening, it will have fallen to 103° F. on the morning of the next day; and on the evening of the same day it will have risen to 105° F. On the following morning it will be 104° F., on the evening of that day 106° F., and so on. Towards the end of the "development period" there is, in many cases, no augmentation of heat in the evening, although there is the usual abatement of 1° F. every morning. The crisis of this illness sets in after the period of development; in the more favourable cases it lasts a week, while in serious cases it may last a fortnight. The fever continues about the same, the diminution every morning being 2° F. The bodily temperature towards evening rises to 104° to 105.5° F. (seldom more), falling on the following morning to 102° or 104° F. The following symptoms are noticeable during this period: the patient shows no interest in anything, and later on becomes unconscious and delirious (especially during night-time); the abdomen is swollen, dysentery sets in, catarrh in the windpipe, and red spots, etc., appear on the body. In the third week of the illness

the fever continues to be 104⁰ to 105⁰ F.; in the evening and in the morning the temperature shows that a favourable turn is taking place. The fever continues to gradually abate, and the above-mentioned symptoms gradually disappear.

During the fourth week the patient may be regarded as being in a state of convalescence. I have only given here the outlines of a normal abdominal typhus during its course, and must make another remark concerning further symptoms.

The organs of digestion are greatly affected by typhus fever. The tongue is during the first week of the illness coated with a yellowish or greyish matter, which disappears in the second week, leaving a red rough surface; the tongue is also sometimes swollen, there being a parched throat and great difficulty in swallowing. The large intestine is likewise affected, as constipation takes place, which, however, changes into diarrhœa in the second week. The stools are yellowish, pap-like, and have a most unpleasant odour: they are sometimes painful and scanty. During twenty-four hours there are often from fifteen to twenty such stools; the patient, however, seldom complains of pains in the abdomen, although the region of the cæcum (intestine), the ileum (intestine), is very sensitive to pressure.

Should intestinal hemorrhage take place, which not seldom happens after the third week of the illness, it should not be regarded as a trifling matter, as it leads to collapse in many cases, although the patient may feel a kind of relief through it. A still more dangerous matter may take place, namely, perforation of the intestines, which is caused by abscesses, and which mostly happens in the third or fourth week, especially when the intestines are filled with gas, or hardened excrement, or when pressure takes place through coughing, vomiting, etc. This generally happens towards the right side, in the small intestine. It is known by a sharp violent pain, which is often not felt when the patient is unconscious. The bodily strength then sinks rapidly, the pulse grows weaker, vomiting, etc., sets in, and death will, as a rule, take place after two to four days. The peritoneum is nearly always inflamed by typhus, the spleen is swollen, and the liver enlarged. The pulmonary organs are considerably affected, bronchial catarrh being one of the most usual accompaniments of typhus. The urinary passages and the sexual organs are likewise often clinically affected, so that one may frequently find suppression of the urine and catarrh

of the bladder. With women who are pregnant there is often a premature confinement, and with others the menstrual flux is irregular. As I have already mentioned, red spots, "roseola typhosa," break out on the skin mostly at the end of the first week of illness, but occasionally later, during the crisis. These spots are chiefly found on the breast, stomach, or back, seldom on the face or the extremities. As a rule these spots already begin to fade after from three to six days' existence. As the nervous system is greatly affected by typhus, the disease is also called nervous fever. The functions of the brain are affected more or less in nearly every case. One patient may be only slightly affected, while another is delirious; a third may be absolutely unconscious, as in a deep sleep. Such patients must then be fed artificially. There are, during this unconscious state, involuntary stools, etc. It also occasionally happens that a patient raves and screams during the state of unconsciousness; he may make attempts to take flight, and get out of bed with the intention of jumping out of the window. After the third or fourth week, when the fever abates, consciousness gradually returns. Abdominal typhus is subject to many modifications during its course, but want of space does not allow a full description of them, so I will just mention that individual circumstances have a great deal to do with the deviation from a normal typhus. For example, with children brain troubles principally occur, while abscesses in the intestines are seldom found. On the other hand, there are again modifications, where the mucous membranes of the pulmonary organs are greatly affected, and the intestinal troubles do not appear. Corpulent persons, as well as those who are given to drinking, or lead an irregular life, suffer, as a rule, from a great weakness of the heart, which is brought about by the height of the fever, and the mixing of the blood with a quantity of typhus poison. As a special modification, I will, in conclusion, mention the typhus ambulatorius, which runs its course without a high fever, and with no other trouble which could cause the patient harm, except that extensive and deeply-rooted abscesses are formed in the intestines, that often cause the patient, who has in many cases not yet taken to his bed, to have the greatest alarm. Another thing also might be mentioned, namely, "the relapse" of typhus, which often comes after the first attack and is caused by errors in diet, or leaving the bed too

soon, but which runs its course with the same pathological and clinical features as the original attack, and only requires about two or three weeks for its cure, in more favourable cases. As regards complications and after-illnesses of typhus, a great many could be mentioned would space allow it, but even if they were mentioned, it would not yet exhaust all the possibilities. As regards the pathological changes of the mucous membrane of the intestines, they are divided into four stages. In the first stage the lymphatic follicles of the mucous membrane of the intestine are simply affected by a kind of catarrh; in the second there is a swelling and hypertrophy of the follicles, that often reach a size of a pea or bean, sometimes coalescing as extended ulceration; in the third stage, where no absorption or drying up of the aforesaid mucus takes place, it causes in many cases an acute inflammation of the mucous membrane of the intestines. This leads on to the formation of abscesses, and is called the fourth stage. The cæcum and the ileum (intestines) are chiefly the seat of these pathological changes. The rise and fall of the fever (as already mentioned on p. 1439) directly affects the inside of the mucous membrane, causing the pathological changes described. The division of typhus into four weeks of illness agrees approximately with these four stages. Although in most cases patients recover from typhus, it must be considered a serious illness. A favourable view of the course of the illness becomes more unfavourable whenever the fever gets higher, whenever the rise of the fever sets in earlier in the evening, whenever the abatement of the fever every morning sets in later, and whenever important complications accompany the fever. The approach of the agony or struggle with death may be expected when the head of the body remains for a length of time over 106° F., or when it suddenly rises to 106° F., or 106.5° F., or when it suddenly falls to 63° F. and below that. For the treatment of typhus one should follow the rules on the treatment of fevers which are given in II., Part VI. While taking into consideration the height of the fever and the constitution of the patient, one should daily use from about four to six hip baths of from 82° to 86° F., each one of from five to ten minutes in duration, in conjunction with douches of 77° to 81° F. Instead of these, one can also use baths in which the whole trunk of the body is in the water; the same number, viz., from four to six daily, of a temperature

of from 81° to 85° F., each bath may be of fifteen to twenty minutes' duration. In the time that elapses between one bath and another, stimulant abdominal compresses of from 73° to 77° F. should be applied to the patient, as well as stimulant calf packs at 77° to 81° F. It may also be efficacious to give the patient an emollient enema of from 77° to 81° F., to be followed by another small cold one of 68° F. It does not matter whether there is constipation or laxation, because it is a question of the greatest importance to use something that may directly affect the abscesses or catarrh of the intestines, and at the same time cause the typhus poison in the intestines to become more liquid. In cases where women are affected by typhus, menstruation frequently sets in during the course of the illness, and it is then necessary to apply, instead of the trunk and sitz baths mentioned above, from four to six spongings of the whole body, but at the same time the use of the enemas and abdominal compresses should be continued. Only in dangerous and complicated cases, or when fever is very high, is it advisable, when menstruation has set in, to make a careful use of baths (having a temperature from 86° to 90° F.) in which the whole trunk of the body is in the water. Advice concerning the care of patients is given in I., Chap. 38, and advice as to diet in I., Chap. 39. As regards diet, I may mention that the patient may be allowed to have cooked fruit, but the addition of much sugar must be strictly avoided, above all the skin or peel of fruit must not be eaten. Concerning the treatment, compare also I., Part. I., Chap. 1, as well as I., Part. VI., Chap. 7, "Cases and Cures."

Typhus, or Putrid Fever. — Typhus is the name given to a serious feverish disease which is distinguished by its extreme infectiousness, and characterised in most cases, but not in all, by the appearance of an eruption of little rose-like spots on the epidermis or outer skin of the whole body. Bad feeding and want of nourishment among the population, wars, famine, long-continued residence in badly-ventilated rooms, swampy districts, etc., favour the outbreak of the disease in question, whence it is also called by names equivalent to hunger typhus and hospital typhus. The infective matter may be transmitted even by the breath of the patient alone, or even by the exhalations of his body. It arises also in rooms polluted by excretory matter from the patients, and finds its way into the organism of relatively healthy individuals

with food and drink, or is carried in the clothing of doctors and nurses, who often themselves fall victims to the disease, so that the most scrupulous and minute cleanliness, and the greatest possible ventilation and airing are necessary in the sick-room, in order, as much as possible, to attenuate the contagion and hinder its spread.

The incubation time (the slumbering stage) lasts, as a rule, from eight to ten days, and makes itself known by the following symptoms: Dulness, weariness, irritability, loss of interest in everything, want of appetite, morbid drowsiness, desire to sleep, or sleeplessness; liability to cold and shivering fits, headaches, etc. At the same time these indications may be altogether or in part wanting, or may only show themselves towards the end of the incubation stage of the disease.

The preliminary stage of the disease generally begins with a violent shivering fit, or with several short attacks of cold and shivering less violent in nature, following close one upon another, and shortly afterwards followed by great heat. On taking the temperature, it is generally found to be as high as from 104^0 to 106.5^0 F. The pulse is full, and makes about ninety to a hundred beats in the minute. At this stage the patient can no longer leave his bed, and experiences the most violent pains in the head, giddiness, singing in the ears, flickerings before the eyes, photophobia (dislike of light), pains or twitchings of the limbs, pains in the lumbar regions, the liver and the spleen, etc. These pains may either be felt simultaneously or one after the other. Some patients fall into a quiet state of delirium, in which they talk deliriously but quietly and continuously; others, on the other hand, are very restless and excited, rave violently and jump out of bed. Constipation or diarrhœa, violent thirst, distaste for every kind of food, dry, cracked lips and tongue, fixed glassy eyes, catarrhal symptoms in the respiratory organs, the nose, the eyes, etc., coughing, stitch, and pains in the chest, difficulty in swallowing, etc., form the further complex of symptoms of the preliminary stage of the disease.

After the course of three or four days, the eruptive stage (the real outbreak of the disease) sets in. At first on the trunk and then on the throat, and at last, on the extremities, the red spots appear on the skin described at the beginning of this article. After a short period of from three to four days these spots change to a blueish red, and upon pressure

leave behind a brownish colour. The subjective symptoms just described as belonging to the preliminary stage of the disease remain with but slight change. The tongue especially is full of scabs, and excessively dry. The patient, who is generally unconscious, suffers from an unquenchable thirst and drinks greedily. The fever remains during the course of the first week at a height of from 104^0 to 106^0 F. It is only on about the seventh or eighth day of the eruptive stage of the disease that the fever, in cases where the disease is running a favourable course, becomes somewhat diminished. Then, at the beginning of the second week, the temperature rises again, and remains at the same height till the end of this week or the beginning of the third week, when, as a rule, with the accompaniment of violent sweating, the lowering of the temperature sets in. When the disease takes an unfavourable course, however, all the symptoms, and with them also the fever, increase at the beginning of the second week of the disease. The patients lie perfectly unconscious, they speak as if in a dream, murmuring unintelligible words, pluck at the bed-clothes, or attempt to lift them up; their faces become drawn, and they show, in other ways, that the Angel of Death is watching at their bedside.

When, on the other hand, the disease is taking a favourable course, the crisis mostly sets in on or about the fifteenth or eighteenth day. Then the patient generally falls into a long, deep sleep, out of which he awakes with a tolerably clear consciousness. The fever, however, only disappears gradually, in the course of from one to three days. In the convalescent stage of the disease the tongue and the lips again become moist, the feeling of thirst is normal, and the appetite comes back, the coughing becomes easier, the eruption becomes pale and scales off. The patients sleep a great deal and for a long time. At each waking up the brain is clearer, but it is only very slowly and gradually that strength returns, and the convalescence lasts, in most cases, for many weeks.

When typhus, after the fever has left off, does not proceed to a cure, then other consequent diseases often set in, such, for instance, as inflammation of the lungs, inflammation of the pleura, catarrh of the intestines, etc., or there remain behind paralytic conditions, neuralgia, cramps, weakness of the memory, etc. It is not seldom, also, that the patients remain confined to bed, and finally perish from gangrene or pyæmia. Cure, however, sets in far more frequently than

do the unfavourable developments that end with death, but the higher the fever and the more manifold the accompanying symptoms, both the subjective and the objective ones, so much the greater are the chances that typhus will run an unfavourable course.

The treatment requires exclusively the Fever Treatment recommended by me in II., Part VI. (With regard to treatment, see also what is said under the heading "Measles.")

Typhus, Recurrent (Typhus Recurrens) is an infectious and generally epidemic disease, characterised by a peculiar course of the fever. The fever disappears after a few days' illness, only to reappear in a greater degree. The incubation lasts five or six days. Premonitions are headache, general weariness and weakness, exhaustion, want of appetite, drawing pains in the limbs, etc. Its breaking out is accompanied by shivering and great fatigue, pains in the head and limbs, furred but moist tongue, dizziness, ringing in the ears, insomnia, indifference, drawn features, etc., and in many instances nausea and vomiting of bile. The fever soon rises to 102° to 104.5° F., then to 106° or 107° F., and remains stationary from two to eleven days, as the case may be, going down a little in the mornings. The pulse is weak but rapid, something like a hundred and twenty. The spleen and liver are swollen, thirst is very great, the urine diminishes, the entire skin is hot, dry, and discoloured; restlessness and weakness increase, and the muscular pains in the limbs, back and neck become sharp and piercing. If this has gone on for about eight days, the fever is followed by a critical symptom. After severe shivering, violent perspiration breaks out. When it is over the body resumes its normal temperature, or even less, in a few hours. The pulse slows down to sixty or even fifty. The health now improves, appetite and sleep regain their sway. In about a week a fresh attack may come on, with precisely similar symptoms. These attacks may be repeated two or three times. Their duration and violence decrease each time, and the intervals also become shorter. If no complications set in, nor after-symptoms arise (disorders of the eyes, ears and lungs), the whole illness lasts from four to five weeks, and generally results in recovery.

The treatment is found in II., Part VI. (See also "Typhus.")

U.

Ulcers, Fibrinous. (See "Fibroid.")

Ulcers, Intestinal, are either a consequence of chronic catarrh of the intestine (see under this head), in which the glands of the mucous membranes ulcerate, or it arises from the throwing off of separate parts of the gangrenous or mortified mucous membrane, as, for instance, in typhoid fever or in typhus fever, in tuberculosis of the lungs, etc. If one neglects this disease, the ulcers perforate the wall of the intestine and produce peritonitis, which comes about as the result of the entry of the contents of the intestine into the peritoneum.

The treatment should, in the first place, be directed to the removal of the primary disease. Then adopt the rules for treatment given under the heading "Intestine, Catarrh of the, Acute," which may be successful when the removal of the primary disease does not immediately result.

Umbilical Cord. (See "Navel Separation.")

Upper and Lower Compresses, according to Kneipp. (See Index.)

Uræmia, or Bloody Urine. — The duty that the kidneys have to perform in the body of man is to free the blood from its excess of water, and at the same time discharge the excess of water, so that the body may be rid of it. (See p. 1166.) But when the kidneys are, through some cause or other, hindered while separating the urine from the blood, the uric matter accumulates in the blood and in the tissues, and a disorder is formed which is characterised by the above clinical features, and is called uræmia, or urine in the blood. Its principal cause is some kind of kidney disease, especially a disease of the kidneys by which the flow of the urine into the kidney basin, the ureter, the bladder, and the urinary passage, is hindered or suppressed. This disorder may set in, in a slight or in a serious form, the severity of the symptoms depending upon the quantity of uric matter accumulated in the blood and tissues. The symptoms are generally as follows: First, there is great restlessness, oppression, fear, short breathing, belching, headache, sleepiness, convulsions, temporary stiffness of the muscles, etc. As the illness progresses the headache increases, being accompanied by continual vertigo and other symptoms, such as neuralgia-like pains, itching, anæsthesia, a feeling of torpor, numbness,

coldness, etc., in the different parts of the body, but mostly in the extremities. It very often happens, when the poisoning of the blood by the uric matter continues for a length of time, that a kind of epileptic convulsion occurs. Even the irritation of the smaller muscles may occasion distortions of the face, wrinkling of the forehead, winking of the eye, grinding of the teeth. Such convulsions may take place many times during the day, at shorter or longer intervals. A symptom which never seems to be absent is vomiting. Diarrhœa is sometimes present, and may not seldom be regarded as a favourable sign. Further symptoms are a foul smell from the mouth, catarrh of the pulmonary organs, asthmatic troubles, sometimes a partial or total loss of consciousness, delirium, attacks of raving, a passing darkness before the eyes, noises in the ears; difficulty of hearing and husky voice; also a deficient quantity of urine is secreted. The bodily temperature is sometimes as high as 104° to 106.5° F., sometimes it falls as low as 93° or 91° F. The duration of the trouble may be for days, weeks, and even for months. As a rule the trouble is cured in the end, although the prognosis is doubtful in the more serious cases. The treatment should be calculated to remove the cause of the complaint. But sometimes the symptoms of uræmia appear so suddenly, that the treatment must be calculated to lessen the severity of any consequences caused by the poisoning of the blood by uric matter. Diet plays an important part, and should be of a kind that is free from nitrogenous matter. The patient should therefore have a cooling and strictly vegetarian diet, such as oatmeal porridge, cooked fruit, curdled milk, a quantity of lemonade, also uncooked fruit, such as grapes, cherries, etc. A few other things that promote the flow of the urine are also recommended, as parsley, asparagus, elderberry tea, etc. In order to stimulate the action of the skin, one should have spongings of the whole body, at a temperature of 77° to 81° F., tepid bed vapour baths No. 2 to No. 4, or cane-chair vapour baths; also sitting baths, in which the patient remains as long as possible. But while these proceedings are going on, the height of the fever must be taken into consideration, and the treatment varied accordingly. (Comp. II., Part. VI.) In order to increase the activity of the intestines, one should use emollient enemas of 75° to 77° F., in conjunction with small cold enemas (which should be given immediately after) of 64° to 68° F. The functions

of the kidneys should be stimulated by placing thick compresses at a temperature of 75° to 77° F. on the region of the kidneys, that may be renewed every one-and-a-half or every two hours. A massage of the kidneys, such as stroking and smacking (Figs. 158, 182), can be employed, and, if permissible, steaming compresses may also be placed on the region of the kidneys. This compress may be turned from side to side several times, and renewed (after being on about eight or ten minutes) from three to six times.

Ureter, the. (See Index.)

Urethra, Catarrh of the. (See "Gonorrhœa.")

Urethra, Contraction of the (Stricture).—A contraction of the urethra may be occasioned by gonorrhœa, or improper treatment, or it may be natural, or occasioned by an injury. It often is occasioned by sharp splinters of stone from the kidneys or bladder, which become fixed in the duct and contract it. The symptoms appear in the passing of the urine, which does not flow in a full and perfect stream, but sparsely, in drops, or in a divided stream.

There are also cases in which the urine is first discharged freely, then suddenly ceases and passes as above. The bladder is seldom quite emptied, so that frequent desire to pass water is in the order of the day. Inflammation is not unfrequently set up in the bladder in consequence of this continual uneasiness.

The treatment is the same as that for "Bladder, Catarrh of the" (p. 812). To remove the cause, follow the rules given for general (health) restoration closely.

Urine, Retention of, occurs either in consequence of a material obstruction in the urethra, or a spasm, or even complete paralysis of the muscles, or in consequence of displacement of the contiguous organs which press upon it. The material obstructions may be tiny particles of stone or gravel from the bladder or kidneys, or splinters, injuries, or contusions. In consequence of the retention, the bladder is more and more distended. The patient is restless, irritable, morbid, the skin is hot and dry, his pulse is rapid, he suffers from nausea, vomiting, and sharp pains, which extend over the entire lower part of his body, and make themselves felt in his back and his thighs. Should no passing of urine now take place, blood poisoning (uræmia) sets in, in consequence of the urine mixing with the blood, or the bladder bursts, and the contents empty themselves into the abdomen, and

cause inflammation of the peritonem (peritonitis) with fatal consequences.

The palliative treatment for the threatening symptoms are the same as for "Bladder, Paralysis of the" (p. 815). To supplement the instructions there given, the following are added: Wet compresses in the region of the bladder, or a bath, increasing in temperature (95° to 106° F.), pouring water down the back, 64° to 68° F. Sometimes an operation is imperative to save the patient's life, especially where the introduction of the catheter meets with an obstruction. When water applications and catheter do not succeed, the urine must be drawn off by piercing the bladder with a long bent trocar and canula. After relieving the local trouble, work against the cause of it by means of special treatment. In doubtful cases follow the rules of the General Strengthening Treatment.

Uterus, Massage of the. (See Index.)

V.

Vaccination, Dangers of. (See Index.)

Vagina. (See "Women's Diseases.")

Vagina, Catarrh of the, Acute. (See "Women's Diseases.")

Vagina, Catarrh of the, Chronic. (See "Women's Diseases.")

Vagina, Cramp of the. (See "Women's Diseases.")

Vagina, Inflammation of the, Acute. (See "Women's Diseases.")

Vagina, Inflammation of the, Chronic. (See "Women's Diseases.")

Vagina, Polypus of the. (See "Women's Diseases.")

Vagina, Prolapse of the. (See "Women's Diseases.")

Vapour Baths, Vapour Compresses, etc. (See Index.)

Vapour Bath, Three-quarter, Bed or Reclining. (See Index.)

Vapour Bath, Cane-chair. (See Index.)

Vapour Sitz Bath. (See Index.)

Variocella, Wind, Water, or Chickenpox. (See "Smallpox, Spurious.")

Variola. (See "Smallpox.")

Vegetables. (See Index.)

Veins, Golden. (See "Hemorrhoids.")

Veins, Inflammation of the. (See "Veins, Varicose.")

Veins, Varicose.—Dilatation, or varicosis, takes place only in those blood vessels which convey the blood back to the heart, i.e., the veins. The knots are generally slow in formation, and show when the walls of the veins have lost their power of contraction, or when the veins are subjected to a constant pressure. This happens when the organs in the region of the vein are gorged with fluid, or when swellings form which exert pressure on the veins and stem the flow of blood to the heart, causing an accumulation beneath the place of pressure and a consequent widening of the vein. Individuals whose occupation requires them to stand very much are subject to varicose veins in the legs, the cause being that the walls of the veins lose their contractile power in consequence of having to bear a continuous expansion caused by the weight of the blood.

Varicose veins appear as irregular, blueish-black tortuous elevations, in which there is a feeling of pressure, sometimes of severe pain, and ultimately are seen as knotty large swellings. Frequently, if cause is not removed, inflammation and ulceration result, or these knotty swellings may burst, causing great loss of blood. The veins mostly affected are those of the ankle, inner side of the leg, around the knee, and the veins of the rectum (back-passage), this latter caused by pregnancy or swelling of the female organs.

The treatment of varicose veins must be by removing the cause. In the case of stagnation of the blood, or in a case where there is an accumulation of fluid in the abdomen, a plain, non-stimulating diet should be given, and at times a modified lowering diet (see Index) is serviceable. Plenty of exercise in the open air, and Active Movements of the Health Gymnastics, Movements No. 4. During the day, a stimulating abdominal bandage, applied two or three hours once or twice daily, followed by massage of the abdomen; perhaps weekly one to two vapour baths, three to four body baths, one to two whole packs, followed by the stimulating abdominal bandage, stimulating leg or calf packs. Inflamed places should be treated with a cooling compress, but festering, hardened, and swollen parts with stimulating compress. Enemas are recommended to aid digestion and empty the bowels.

Varicose veins of the upper and lower leg, besides being treated partially in the lines indicated above, should have massage, which I have described on p. 701 and 702. The hardened and swollen spots or knots should be rubbed and kneaded in an exceedingly gentle and light manner. After the leg has been massaged, follow by a short abdominal massage, and apply at bed-time a stimulating pack to the upper or lower leg, with thick, stimulating, extra compresses on the knots, in addition to an abdominal bandage. In suitable cases, the Movements No. 10 of the Health Gymnastics are beneficial.

In advanced and bad cases of varicose veins of the lower extremities, patients are recommended to wear laced stockings during the day; the wearing of elastic or rubber stockings is not to be advised, as they have a tendency to interfere with the circulation and the ventilation of the limb. The most efficient way is to use a linen bandage four to four-and-a-half yards long, and one-and-a-half to two inches wide, which must be applied in a proper way from the toes to the knee. It must be firmly and uniformly applied, and not press on any part so as to interfere with the circulation. Fig. 271 shows us how a bandage to the arm is applied, and how the turns are made. Fig. 272 shows the lower leg bandaged in a proper manner. The bandage should be removed on going to bed, and applied on rising.

Venesection (Bleeding) is the letting of blood, by means of an incision in a vein, for the purpose of curing disease. The Natural Treatment does not recognise this "sensible" scientific method, as it has sufficient other harmless and perfectly safe remedies amongst its curative treasures, which will relieve any of the organs or parts of the human body suffering through engorgement of blood, and restore a normal blood distribution.

Ventilation.—Airing of our studies, sitting and bedrooms, etc., is a hygienic measure essentially requisite for soundness of health. This is most easily brought about, generally and specially in summer, by opening, to their full extent, our doors and windows. But the matter is somewhat different in winter. Then doors and windows are more tightly fastened, double windows put up, and thick, woollen curtains and all kinds of preventive measures taken to keep out even the smallest breath of wind. Fortunately, we live in houses whose constructive material is porous enough to keep

up a continuous intercommunication between the air outside and that inside the house. Consequent upon the more or less porosity of all building material, an invisible and uninterrupted airing of our rooms is continuously taking place. This kind of ventilation is termed "voluntary," and it is a happy coincidence that this voluntary ventilation takes place most rapidly — against the unreasonable will of the inhabitant, whom biting cold impels to sit incessantly in heated and apparently air-tight rooms — when the requirement for ventilation is naturally greatest. The warmer it is in the room and the colder it is outside, the greater the difference in temperature, and, proportionately, the invisible ventilation of our rooms. Professor von Pettenkofer instituted interesting and detailed enquiries concerning the art and the extent of voluntary ventilation. Among other things, he showed that a light might be extinguished through the medium of a brick. Bricks allow a moderate amount of voluntary ventilation, rock or pebbles only a small one. As the latter are, for the most part, irregularly formed, they require much mortar, which admits the air freely. Moist bricks are wholly air-tight, as their pores are obstructed by water. In new, or damp houses, therefore, voluntary ventilation is nil.

The fluctuating pressure of the atmosphere has also an influence on voluntary ventilation. The stronger the force of the wind blowing upon the wall, the greater the intensity of its voluntary ventilation, the interchange of outside and inside air.

Ventilation sufficient for the requirements of practical life and health can be accomplished by the occasional opening of doors and windows, although this is not by any means quite the ideal method. (Refer further to this subject, in Index.)

Vertebræ. (See "Bones.")

Vertebræ, Deformity of. (See "Spine, Curvature of the.")

Vinegar is the product of certain vegetable juices containing sugar. The process of fermentation is set up by the admixture of vinegar yeast. The sugar is thereby converted into alcohol, and this, through the access of oxygen from the air, into vinegar. The rapid manufacture of vinegar in the present day is effected by means of placing sieves made of beechwood, and that have been boiled in vinegar, in barrels, and allowing spirit to filter through these. By means of

suitable holes made in the casks the air can pass through without restraint, so that the greatest possible amount of oxygen has access to the spirit. According to the materials out of which vinegar is produced, one distinguishes wine vinegar, beer vinegar, malt vinegar, or fruit vinegar, these kinds being produced by the slower process of fermentation. The best vinegar is wine vinegar. It is prepared in wine-growing districts out of the inferior wines of little value, although the name "wine vinegar" has also been given to the vinegar manufactured out of spirits. The spirit vinegar is still, however, better than that made from fruit juices, to which the well-sounding name of "wine vinegar" must also be given, especially the well-known Burgundy vinegar, very frequently prepared from bilberries. Vinegar is often adulterated with sulphuric acid or hydrochloric acid. It is then extremely injurious to the stomach. The adulteration can easily be detected by tasting, for thereupon the teeth become set on edge. Good vinegar (ordinary table vinegar) exhibits a bright, clear, pale brown fluid, which only consists of vinegar acid and water. Good wine vinegar is likewise bright and clear, has a pleasant and refreshing smell, tastes mildly sour, forms no deposit, attracts the vinegar flies, and tastes unmistakably of wine.*

Vinegar, as the factories supply it, is, as a rule, so strong, that it has to be weakened with water. The ordinary table vinegar contains about three to five per cent., wine vinegar about six to eight per cent., and vinegar spirit about ten per cent. of acetic acid. Vinegar in so far affects the digestion that it contributes to the solution of albuminoids. There are therefore good grounds for adding vinegar to certain meat, egg and farinaceous foods, especially to leguminous vegetables such as beans and lentils. It is more advisable to add vinegar to these dishes when they are already cooked, than to boil the vinegar with them. Food cooked with vinegar attacks the stomach to a great extent. It is impossible to utter too strong a warning against the common abuse of vinegar, although it is a thing that is very useful and highly-valued in the household. On account of its cooling properties, it is often made use of (diluted with water) as a fever remedy. Nevertheless, there are much more

* The vinegar fly is the red-legged, red-headed fly (*drosophila funebris*).

agreeable and suitable remedies, such as the fruit juices (lemon juice, raspberry juice, etc.), which serve the same purpose much more readily and much more effectively. Through long-continued internal use of vinegar the digestion suffers, nutrition becomes faulty, and the panniculus adiposus, or cushion of fat, disappears. Young ladies, whose abdominal circumference has already exceeded the bounds of pure admiration, therefore often take refuge in partaking of vinegar. One result they certainly attain, and that consists in a ruined stomach, a withered and relaxed skin, in which the flesh is loosely contained, and in a yellow-coloured face with a pained expression. As an outward application, vinegar diluted with water is used in the Kneipp Cure. "Water and vinegar are used," says Father Kneipp, "in order that weakly persons, and such as have hardly any blood, may more rapidly obtain warmth."*

Virulent Smallpox. (See "Smallpox.")

Vomiting may be caused by local irritation, influences in the stomach itself, such as overloading of the stomach, indigestible food, the swallowing of foreign bodies, oily matters, worms that have got into the stomach, emetics, drinks containing carbonic acid gas, acids, etc. Or it may result from the reflex action of the other organs upon the nerves of the stomach, as, for instance, through irritation of the pharynx, the nerves of the diaphragm, the brain (headache, giddiness, rocking, as in seasickness), etc. Pregnancy, and diseases of the kidneys and the bladder often induce vomiting, in consequence of the irritation exercised upon the nerves of the stomach by the morbidly altered or affected organs; in the great majority of cases, however, vomiting is to be considered as a means of self-help, adopted by the organism in order to rid itself of injurious or indigestible, or superabundant masses of food or matters in the stomach, such as are present in feverish conditions when infection has taken place, when the excretory organs are interrupted in their functions, when the secretions or excretions are interfered with, or when eruptive diseases are checked and driven back into the system, after great loss of blood, etc.

Many persons suffer from vomiting during a chronic general disease. When the primary disease disappears, so

* See also foot-note on p. 474.

also does the secondary trouble of vomiting, and with this in view, one must direct the treatment to the removal of the primary disease. Vomiting that takes its rise in a local affection of the stomach requires no special treatment. At most one should assist the process by drinking small draughts of water of the temperature of the room (66° to 68° F.), and should take a laxative enema at from 73° to 77° F., in combination with an injection, to be retained, at 66° F. If the vomiting shows no sign of leaving off, then apply a stimulating abdominal fomentation at from 77° to 81° F., containing an extra compress on the abdomen from the navel downwards, as well as stimulating calf packs at from 66° to 68° F. Coldness of the feet and hands must be removed by the use of a hot-water bottle wrapped up in a damp cloth. Or one may give reclining vapour bath No. 3, or a cane-chair vapour bath in combination with complete washing of the body at from 77° to 81° F. The promotion of the excretory action of the skin (perspiration), while retaining the horizontal position of the body, is a most important requirement for the removal of this tormenting condition. If constipation is also present a few hours after the vomiting has ceased, a laxative enema, followed by a small cold one, should be administered. In order to quiet continuous vomiting, cold black coffee, mixed with freshly-squeezed lemon juice, may, as an exceptional measure, be given as a drink. One may also give the patient a cup of warm, strong tea.

Bon vivants, gluttons, drinkers, and so on, often suffer from the so-called morning sickness. This process indicates a chronic affection of the mucous membrane of the gastrointestinal canal. The hindmost portion of the tongue, the root of the tongue, and the back of the pharynx and the tonsils, are, as a rule, at the same time covered with a tough mucus, which necessitates clearing of the throat and coughing soon after waking. As a consequence the pharynx is irritated, and sickness and an inclination to vomit set in, and when the sufferer is fasting, watery thin fluid masses are thrown up. These are whitish in colour, slimy, and more or less tough, and possess an alkaline reaction. These vomits are produced partly by the mucus which has been secreted to excess during the night in the stomach itself, partly from mucus that has been swallowed.

The removal of this kind of vomiting is only brought about successfully by the cure of the primary disease. (See

on this subject, full particulars under the heading "Stomach, Catarrh of the, Chronic.")

Pregnant women are frequently subject to vomiting. If they avoid coition during pregnancy, wear no tight clothes, avoid eating all indigestible or flatulent dishes, and take daily exercise in the open air as much as their strength will permit without fatigue, take care to keep the bowels regular, sleep with their windows open, and take a daily trunk bath two or three times at a temperature of from 81° to 85° F., and of a duration of from seven to ten minutes, this vomiting will, as a rule, soon cease. (See for full particulars on this subject, under the heading "Pregnancy, Disorders incidental to," in Index.)

W.

Walking on Wet Grass, Wet Stones, and in Freshly-fallen Snow — Kneipp's Treatment. (See Index.)

Warmth. (See Index.)

Warts are caused through the lengthening and uniting of a group of the follicles of the skin, covered by a thick and hard epidermis (upper skin). If some of these follicles are divided (that is to say, if the wart is cut), the wart presents a fibrous, rough appearance. Warts may be either long, or large in circumference, and may have existed from the birth of the person, or else they may have appeared afterwards without any reasonable cause. Constitutional illness, the faulty admixture of the humours of the body, etc., probably have something to do with the cause.

Warts should be treated thus: Give the affected part vapour baths, and also apply stimulating compresses. We can, however, get rid of warts quicker by using the popular concentrated mineral acids (muriatic acid, sulphuric acid, etc.), a drop of the acid being put on the wart from time to time, and left there to soak in, or put on the wart (several times daily) a mixture of concentrated vinegar and salammoniac, or else touch it with a small piece of linen on which a few drops of acetic acid, or chemically pure carbolic acid, have been dropped.

Washing-out.—See under the headings of "Injections," "Syringing," "Enemas of the Rectum, the Womb, the Vagina, the Nose, the Ears," etc., in the Index.

Wasp Sting. (See "Poisoning," p. 1288.)

Wasting Consumption. — Wasting, or consumption, should not be confounded with loss of flesh which is seen after a fever, or which follows excessive loss of moisture from the body, or matter by suppuration, or chronic diarrhœa, etc. The wasting of which we are now going to speak is a disease due to the changes of the food stuffs in the body and bad nutrition, and the insufficient assimilation of the products of digestion. Not only the poor and starving, but the young of both sexes, apparently strong, with plenty of nourishing food to eat, good appetites, and digestion seemingly in order, suffer from this disease, and we are quite unable to give any cause. The fat first wastes, then the muscles dwindle, becoming lax and powerless, and a general debility ensues. The patient in this state is excitable and irritable: suffers with sleeplessness and loss of memory; at this stage the appetite may still be fairly good and the digestion apparently normal. Should this wasting continue some years, it may probably end in atrophy and sudden death.

Quite apart from the privations, over-exertion, insufficient nourishment in quality or quantity, worry, grief, etc., which these wasting patients have suffered—after removing the cause—the principal thing is bodily and mental rest, a sufficient quantity of nourishment, a suitable and mild treatment of the skin, and plenty of fresh air. There seems to be a very mistaken idea that the wellbeing and welfare of those afflicted with wasting disease is largely dependent on a good supply of very nourishing food.

But we are leaving two circumstances out of consideration: Firstly, that plentiful and nourishing foods require an extra amount of exertion, muscular and by the lungs, to convert the food-stuff into material; and secondly, that these so-called nourishing foods only form useless ballast for the body, and eventually weaken it. The organs have not sufficient power to convert the food-stuffs which are eaten into healthy, pure blood, and change it into the normal constituents of the body. In choosing a nourishing diet, it is not the quantity of nutrition which it contains that is so important, as that it should be easily digested and converted into the various constituents of the body, that is to say, assimilated. The foods a patient has been used to should be taken into account when choosing a diet for wasting disease. We often see a wet-nurse having milk in abundance, whilst living on a plain, frugal diet in her country home, losing the same, on a town life and rich

diet of eggs, wine, beer, coffee, meat, etc. A non-stimulating, but yet nourishing diet, is most suitable for patients with wasting disease, assisted by the natural health restoratives, fresh air, light, water, exercise and rest, as required in individual cases. Principally, the patients must have the whole body massaged by some one in sympathy with them. Otherwise, follow the directions of the General Strengthening Treatment. (See Index.) If the wasting is the direct result of or the accompaniment of any specific disease, the treatment must be in accordance. We find in this particular, anæmia (poor-ness of blood), green sickness, scrofula, and pulmonary consumption.

Wasting Consumption in children during the age of suckling is nothing but poverty of blood. The skin of the suckling is pale, lax, greyish, earthy, livid or fawn-coloured, and is stretched like leather over the bones. The eyes look tired, and are sunken deeply into the head; the nose is drawn, and the whole face wears an aged expression. Sleep is mostly short and restless, appetite scanty, the abdomen hard and tumefied; constipation, with diarrhœa of a sour smell. Fits and brain affections very often complicate matters. This state, if not alleviated, ends in exhaustion and death, but should it continue for any length of time, during the growth of the child, it invariably ends in rachitis (rickets) or scrofula; should the child live to the age of puberty, the rickets or scrofula mostly develop into a tuberculose (consumptive) state, affecting the lungs.

Children may be born with wasting disease: in this case the mother is weak or chronically ailing. Children born prematurely mostly have a tendency to wasting disease, indicating their immaturity. Wasting disease in children when acquired is most frequently caused by bad or insufficient milk of the mother or nurse, or milk from unhealthy or badly-fed cows.

This dangerous state should be suitably treated without loss of time. Invigorating warm baths, pure, good, warm air in the rooms, and, above all, rectify the imperfect nutrition by feeding with good milk, preferably by means of a wet-nurse. (For further details, see "Suckling, or Nursing Infants," in Index.)

Wasting Paralysis in Adults, Inflammation of the Grey Anterior Horn of the Spinal Cord.—

This is much the same disease, to all appearance, as the foregoing, resulting in the same pathological changes of the

spinal cord. The causes are unknown. The illness begins with fever, and violent pains in the back and at the bottom of it. The so-called limp paralysis, which comes on at the close of the feverish stage, attacks one or all four of the limbs, but the muscles of the body and face escape. If the paralysis does not gradually recede, emaciation comes on, i.e., the muscles shrink and contract continually. Deformities of bones and joints set up, but, in adults, are seldom noticeable. If a sensible, rational treatment be adopted, recovery is usual. The treatment is the same as for children in the preceding article.

Water. (See Index.)

Water on the Brain. (See "Brain, Dropsy of the.")

Water on the Chest. (See "Hydro-thorax.")

Wave Bath. (See Index.)

Waxy Degeneration of the Kidneys. (See "Kidneys, Diseases of the.")

Weakness, Organic, in Man; Impotency.—A weakness showing itself in a loss of sexual power. It may originate in a diseased condition of the male organs, through injurious habits, or be the result of the presence of poison in the system. The treatment must be strictly individualistic, consisting mainly in the application of the General Strengthening Treatment.

Wetting the Bed; Enuresis Nocturna.—The involuntary passing of water in the night, known to medical men by this name, is a condition in which the patients are able, during the day and when awake, to hold back the urine, but when asleep are unable to do so, because the irritation caused by the bladder being full is not powerful enough to wake them up.

This malady is most common in childhood of both sexes, and generally disappears of itself at from the seventh to the twelfth year of life.

When there is no real incapacity for retaining the urine, such as would result from a high degree of weakness in the neck of the bladder, or from cramp or convulsive contraction of the walls of the bladder, the cause of the disease lies in cramp of the bladder, which overcomes the resistance of the muscles of the bladder, always somewhat relaxed in sleep.

This cramp results from an irritated condition of the abdominal organs, caused by their being overladen with disease-producing material; from excessive fulness of blood;

from the presence of worms, etc., and arises chiefly in scrofulous, weakly, or nervous children.

It is the greatest possible mistake, on the part of parents and others who have charge of the young—a mistake, however, which is unfortunately often made—to represent the child as a terrible sinner, and to punish it or put it to shame. There are, of course, also some naughty or lazy children who do not like the trouble of getting out of a warm bed when they feel the necessity of making water, and simply do it where they lie; but these children are the exception, and they, of course, may be punished, at any rate when from four to five years old. In the case, however, of the vast majority of children, it is not a matter of indolence or of will, but the result of a diseased condition, and the trouble can only be removed by proper curative treatment.

In the evening the child should not eat too late. He should have very little liquid food, no soups and no fruit, but only bread and butter and thick oatmeal porridge or thick gruel made of groats.

He should be induced, before going to sleep, to empty the bladder, and, if possible, also the bowels. He should be put to bed in not too warm or soft a bed, and not lie on a feather bed, but only on a hard mattress, and be covered with one or more blankets. He should sleep in a cool bed-room, and be induced to lie on his side not on his back; and when over four years of age should be awakened shortly before midnight, in order to let him pass water, and, before going to sleep, a cool enema, 77° to 81° F., is to be given.

Wet Shirt, according to Kneipp. (See Index.)

Wheat Grain. (See Index.)

Whitebloodedness, or Leucocythæmia.—The name leucocythæmia applies to a disorder during which there is a progressive over-filling of the blood with white blood corpuscles, while the red blood corpuscles gradually decrease in number. (Comp. the article “Blood.”) Little has as yet been found out about this disorder, which originates probably in the organs which prepare the blood—the lymphatic glands, the spleen and the bone-marrow—as these organs are greatly and pathologically changed during the progress of the illness. It is still an open question whether previous infectious illnesses, or constitutional disorders, such as typhus, diphtheria, malaria, fever, etc., or whether physical

defects, licentiousness, or great bodily hardships, etc., have anything to do with the cause.*

The disorder commences with a feeling of violent pain and pressure in the region of the spleen, with general exhaustion and weakness. The sensitiveness of the spleen betokens a greater or lesser swelling of this organ. The swollen spleen feels hard to the touch, and often grows so large in circumference, that the neighbouring organs are moved out of their position, which causes the patient's suffering from an unpleasant feeling of tension and pressure in the abdomen. In many cases there is also a swelling of the lymphatic glands, especially on the lower jaw, neck, back, armpits, and in the bend of the groin. As regards the rest, this disorder is similar to a progressive, malignant anæmia. (Comp. the article "Anæmia.") The illness often lasts for years. The end of the disease is often an unfavourable one. When death takes place, it is mostly on account of the general loss of bodily strength, but often on account of bleeding which cannot be stopped (comp. the article "Blood Disease"), and to which people who suffer from leucocythæmia are very susceptible. The treatment is the same as that for "Chlorosis."

Whitlow, Paronychia.—By whitlow is meant inflammation of the finger-nail. The seat is either under the skin of the surrounding fleshy mass, under the nail itself, in the flexor or extensor tendons, or in the bone skin (periosteum) of the nail. The causes are, injuries, wounds, the presence of foreign bodies, blood and juice, dyscrasia, drug poisoning, especially after external or internal use of mercury, iodide of potassium, etc. The symptoms are, inflammatory redness and swelling; uncommonly violent, pulsating, stinging pains, extending along the arm as far as the shoulder; later on, festering and suppuration of the inflamed part, slight fever, etc. The inflammation, in many cases,

* The doctor should not, however, remain satisfied with the above-mentioned diagnosis regarding the symptoms of leucocythæmia, it being absolutely necessary that a microscopic examination of the blood should be made, which is the most important clinical test. A clean pin should be obtained, which should be passed through an air-flame, if possible, and then the finger tip of the patient should be pricked, the extracted blood dropping into a clean glass. In a severe form of the disorder, one can with the naked eye see the watery, pale appearance of the blood. With a powerful microscope, we can distinctly recognise the abundance of the white blood corpuscles.

seizes several finger nails, either simultaneously or successively, and frequently extends to the finger itself, in which a tedious inflammatory process takes place.

The treatment should be local, and anti-inflammatory in character. Hand baths, at 77° to 86° F., lasting for from ten to fifteen minutes; stimulating, moderately wrung out finger and hand bandages, at 72.5° to 77° F.; elbow baths (p. 542), hand steam baths — all these, carried out successively, with due regard to the intervening pauses, will effect a cure, in a case of preliminary inflammation, in from half to two days, and with greater certainty, when to these are added a suitable general treatment, in the form of whole or three-quarter packs, vapour cane-chair baths, with nightly stimulating body and calf packs. The hand should be borne in a sling (Fig. 424), providing for the maintenance of the finger in a position



Fig. 424. A simple arm sling.

sufficiently elevated to deter any overflow of blood reaching it. The diet must be mild, plain, and strictly vegetarian. (Comp. articles on "Boils," "Inflammation," "Bone, Inflammation of," p. 861, and "Wounds.")

Whole Bed Vapour Baths. (See Index.)

Wholemeal Bread. (See "Graham's Bread.")

Whole Packs. (See Index.)

Whole Vapour Bath. (See Index.)

Whooping Cough, Spasmodic Cough, Suffocating Cough.—Whooping cough is one of the most frequent and far-reaching of juvenile diseases. Differences of opinion as to the nature of this disease, whose chief characteristic symptom is spasm, are numerous. Some regard it as a nervous, catarrhal disease of the trachea; others attribute an infectious character to it, especially from its infectious capacity and epidemic appearance. However, as yet,

there has been no success in the hunt for bacilli, which, without doubt, are genuine bacilli of the "*tussis convulsiva*." It generally seizes children between their first and second teething, that is, from their seventh month to their tenth year. Some exceptional cases have taken place even before the seventh month.

Adults are also seized by it, especially when mothers and nurses are exposed to the infection. Three stages are distinguishable in whooping cough: The first being characterised by catarrh; the second by cramp or nervousness; the third, the loose or critical stage.

The first of these has the common symptoms of catarrh. The children suffer from loss of appetite, restless sleep, dislike of light, coughing, dry tickling throat, red and watery eyes, sometimes hoarseness, and yawning; they feel upset and cross, have no inclination for fun, and are more or less feverish.

This condition, which, when the disease has not been recognised as epidemic, is taken to be an ordinary cold, lasts generally from one to two, or sometimes from three to four weeks.

The second, the cramped or nervous stage, transmitted through the first, gradually distinguishes itself by violent, wearing-out fits of coughing. These have a very characteristic form. After several short, convulsive, rapidly successive expirations (convulsive cough), long-continued, deep, piping, panting inspiration follows—the child pants. This short, interrupted, convulsive cough, followed by long, deep inspirations, is repeated several times, when the attack winds up by the expectoration of a large quantity of stiff, glassy mucus. Its duration is generally from one-half to two minutes, or more, on occasions, to a quarter-of-an-hour. Its cause is consequent upon laughing, crying, swallowing when either eating or drinking. But frequently it comes on without any attributable reason. When this happens, the children experience an inexplicable anxiety, excitement, and disquietude, stop playing, and hold tightly to some friendly adult, or hold fast to some fixed object. During the attack they wear the anxious look of threatened suffocation. The face swells and becomes black and blue, and the reddened eyeball seems to start from its socket. Sometimes blood oozes from the nose and mouth, or even from the lungs and ears, in the case of rupture of the ear drum. Frequently vomiting is experienced,

and, in very bad cases, the little blood vessels of the conjunctiva are damaged (torn). In many cases power of the evacuating organs is lost, and, in the worst cases, rupture of the abdomen may occur. After an attack the child feels very worn out, and wishes to sleep. The attacks come on in the day or during night, and their number, within the twenty-four hours, ranges between fifteen and forty. But the more frequent the attack the less violent is its force, and vice versa. The convulsive stage lasts from four to six weeks.

The loose, or critical stage, gradually sets in. The attacks then decrease, both in intensity and frequency. Should the child not be guarded from catching cold, or such injurious influences, inflammation of the lungs, bronchial tubes, breast, skin, and heart casing may be developed. This stage lasts generally from three to four weeks.

The treatment of whooping cough must perform a double duty, firstly, to shorten its long course, and secondly, to mitigate the violence of its single attacks.

The children should, according to the requirements of the case, receive once or twice a day, perhaps thrice, a full bath at 87° to 91° F., or a half-bath at 85° to 89° F., or a body bath at 83° to 87° F., lasting from ten to fifteen minutes; or, when bathing may not be convenient, a daily wash at 78° to 82° F., commencing with the feet and extending it gradually in the direction of the heart. The drying process must be performed by the aid of the gentlest dabbing; friction, or rubbing the skin until red, must, unconditionally, be abstained from. Vapour baths are of the utmost importance, and produce excellent effect. For little children, the prescription given in II., Sec. IV., Chap. 13, should be chosen. For quite little children, vapour applications should be preferred, and administered from two to three times a week. For bigger children, a cane-chair vapour bath, a foot vapour bath (Fig. 127), or a bed vapour bath (No. 3 or 4), is to be used every second day. During night, the treatment should be an invigorating Scotch bandage at 77° F. (p. 498), together with stimulating packings at 73° F.; also hot bottles, encased in damp cloths, placed to the feet. Instead of the Scotch bandage, a body bath at the same temperature may be substituted. Older children may use a gargle of water at 78° F., with a judicious amount of lemon juice, every two or three hours during the day. Small children must be carefully and zealously helped in accomplishing the, for them, difficult

manœuvre of gargling. For the removal of any costive appearance, frequent softening enemas at 77° to 81° F., together with the subsequent small cold ones at 74° to 78° F., should be given. The diet must be simple, plain, and easy of digestion, and consisting chiefly of vegetables. The health-giving factor, air, requires, without doubt, every consideration in the treatment of whooping cough. The windows should be opened day and night, and the temperature of the room kept up in winter. Better pay the coal merchant's than the physician's bill. In summer, the children should be allowed to run about barefoot in the sun and air. If they are to be prevented from being seized with the infection, do not over-feed them, and have their systems hardened by sensible and rational means.

Wind, or Flatulency, arises through a collection of gases in the intestinal apparatus. It is caused by the eating of certain kinds of food and by partaking of certain drinks (such as, for instance, leguminous vegetables, pickles, beer, tea, etc.), and also arises as a consequence of some morbid condition of the abdominal organs. or of their functions being disturbed. In the last case the patient experiences a sensation of tension in the abdomen, pains, etc., and in consequence of the elevation of the diaphragm a difficulty in breathing is caused.

The treatment has, for its first task, the removal of the primary disease or trouble. The General Strengthening Treatment may be adopted. A transient tendency to flatulency is generally removed by abdominal fomentations at from 68° to 77° F., for two or three hours. Abdominal massage has been proved to be very effective. Moreover, small cold enemas at from 68° to 72° F., and the Cycle of Movements No. 4 in the Simple Active Movements of Gymnastics, and of the Curative Gymnastics, are to be recommended.

Wind, Flatulence in Little Children.—Flatulency is a common and frequent trouble in the earliest years of life. The development of gases and their pressure causes the child discomfort; it has pains in the abdomen, becomes restless, turns the eyes about and cries; sometimes it draws up its legs, sometimes it kicks them outwards, or rubs its face with its hands, and in sleep it may, perhaps, keep the eyes open. The abdomen is tense and swollen; after the expulsion of wind, the child feels relieved for a time. Constipation is generally combined with the symptoms just described. When there is no irritable condition of the mucous membranes

Plate VII.*

Fig. 1. Female pelvis (perpendicular section).

- | | |
|-------------------------------|--------------|
| a. Bladder. | g. Anus. |
| b. Womb. | h. Perinæum. |
| c. Anterior lip of the womb. | i. Septum. |
| d. Posterior lip of the womb. | k. Urethra. |
| e. Rectum. | l. Clitoris. |
| f. Spine. | m. Prepuce. |
-

Fig. 2. Womb in the virgin state.

Two-thirds natural size.

- | | |
|-----------------------------------|-----------------------------|
| a. Base of womb. | d. Neck of womb. |
| b. Body of womb. | e. External mouth of womb. |
| c. Region of inner mouth of womb. | f. Oviducts. |
| | g. Round ligaments of womb. |
-

Fig. 3. Womb, ovaries, fallopian tubes or oviducts, ligaments of the womb. Vagina laid open.

- | | |
|-----------------------------|------------------------------|
| a. Oviducts. | g. Posterior wall of vagina. |
| b. Broad ligaments of womb. | h. Ovaries. |
| c. Round ligaments of womb. | i. Base of womb. |
| d. Neck of womb. | k. Body of womb. |
| e. Vagina. | l. Fimbriæ or fringes. |
| f. External mouth of womb. | |
-

Fig. 4. Womb (section in profile).

- | | |
|----------------------------|----------------------------|
| a. Vagina. | e. Internal mouth of womb. |
| b. External mouth of womb. | f. Anterior wall of womb. |
| c. Anterior lip of womb. | g. Posterior wall of womb. |
| d. Posterior lip of womb. | h. Base of womb. |
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* Full explanations will be found on pp. 1467 to 1471, under "Diseases of Women."

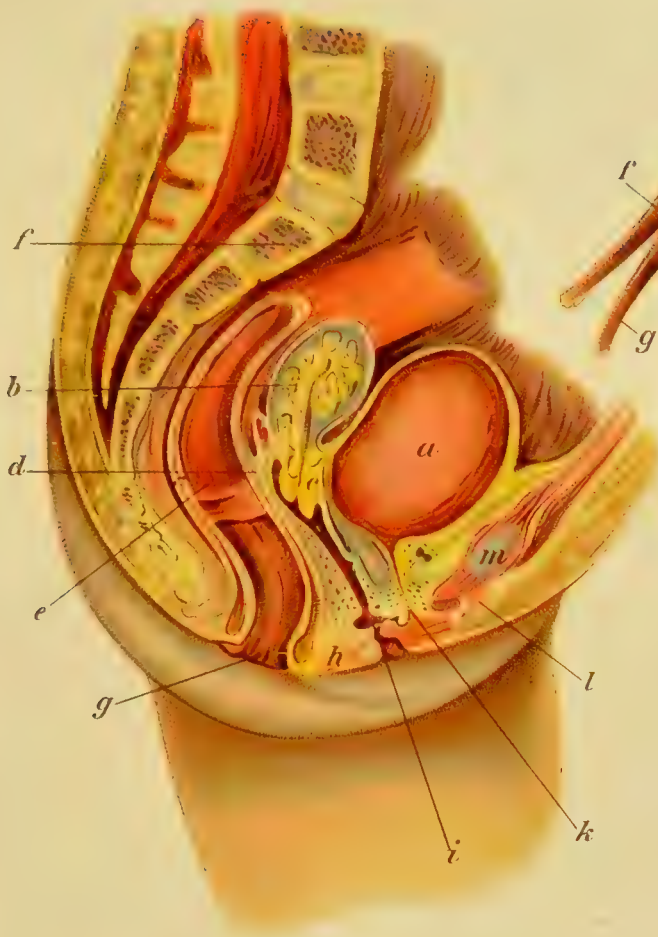


Fig. 1.

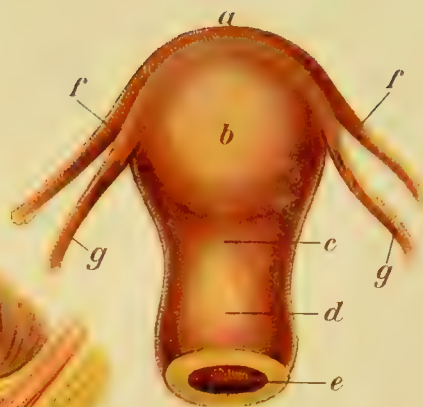


Fig. 2.

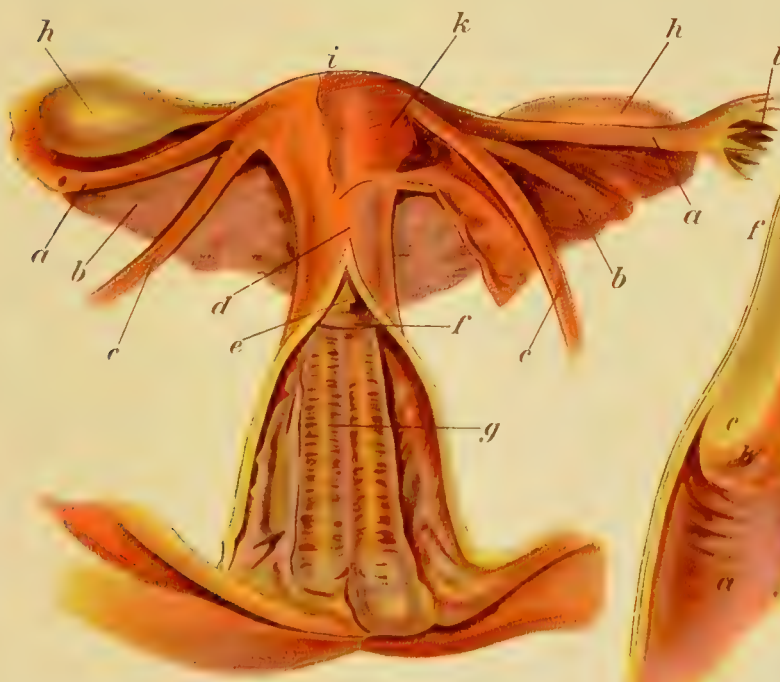


Fig. 3.



Fig. 4.



of the intestinal canal, and no general conditions of weakness of the digestive organs (which can be easily recognised by the never-failing symptoms of mal-nutrition, such as a pale and yellowish colour of the skin, emaciation, etc.), the general causes of flatulency in young children are the following: Insufficient nourishment, or catching cold. If the suckling mother or the wet-nurse is unsuitable, or if even they suffer from troubles of the digestion, or if they put the child to the breast immediately after some mental excitement; then, since the milk has suffered alteration, flatulent troubles are the unavoidable consequence. But flatulence may also be caused in young children by partaking of milk from improperly fed cows; by partaking of tough or badly made porridge, and so on; and generally, from partaking of indigestible food, from lying too long in wet clothes, from a draught when the child is bathing, etc.

The treatment: The first thing to see to, is the removal of the cause, especially when this consists in improper or insufficient nourishment. In cases caused by indigestible or unsuitable food, use should be made of an abdominal fomentation, at from 81° to 85° F. This must be changed as soon as it becomes warm. Also stimulating packs for the calves, at from 73° to 77° F., may be made use of. In order to induce movement of the intestines, one should make use of massage of the abdomen (Grip Nos. 1 and 2), but these must be carried out in the mildest possible manner. When cold is the cause of flatulency, then the abdomen must be rubbed with warm flannel, and afterwards covered therewith, and a mild vapour bath of short duration given, in order to carry off the gases. In both cases lukewarm enemas at from 84° to 88° F. should be given.

Windpipe. (See "Lungs.")

Women, Diseases of. — Woman is, in regard to sex, the opposite of man. She forms his completion for the common functions of married life, to the fulfilment of which the man is only periodically, but the woman perpetually, adapted from the time of puberty until the years of change. In consequence of the end for which nature intended woman, and the nature, extent, and duration of the task set her in relation to sexual life, she is differently organised to man. The sexual organs of woman take up a much greater space than those of man. They possess entirely special and peculiar organic power and capabilities; they are very complicated in

their nature, and stand in the closest and most intimate relation and reciprocal action with the whole life of the circulation of the blood and the nervous system. The so-called diseases of women are based upon the peculiarity of structure and of function of the internal and external sexual organs. In consequence of our conditions of life at the present day, so entirely opposed to nature, these are so frequently attacked by various diseases, that a really healthy woman, that is to say, entirely healthy in so far as her sexual organs are concerned, forms the greatest possible exception to the rule, therefore maladies of women which do not lie within the sphere of her sexual life are not properly included among diseases of women in the narrower sense of the term, although they take on a more or less typical form and special characteristics on account of the sexual peculiarities. Besides this, one often finds that diseases within the sexual sphere exist without specially prominent disturbances of the general health, and only give evidence of their presence through more or less prominent symptoms in the sexual sphere itself, whereas, on the other hand, many considerable maladies of the entire organism, especially such as affect the nervous system and the circulation of the blood, have their root in some hidden, chronic trouble of the sexual organs which, only because it was an unknown cause, was able to exist so long and continue to produce the general symptoms complained of, because it produced little or no subjective symptoms in the sexual sphere, and because its presence was therefore unknown to the woman herself.

It is indispensable, before we commence to deal with the diseases of the female organs, that we should be instructed as to their anatomical structure and physiological symptoms, so that we may be the better able to gain an understanding of the pathological changes in the sexual organs of woman.

The female sexual organs and organs of reproduction lie for the most part in the pelvic cavity. The chief organ to be distinguished, on account of its functions and its periodical changes of form and condition, is the uterus or womb. This is the organ which serves for the reception of the ovum that is given off by the ovaries, and for its development in the fertilised condition. It is connected with the two ovaries by two tubes (for the passage of the ova) called the Fallopian tubes. It is in the ovaries that the formation and ripening of the ovules destined for fecundation takes place. The

vagina, and the external sexual organs, serve the purposes of coition, and also for the exit of the ripe fœtus, while the two glands of the breast, which stand in the closest reciprocal relation with the womb, the ovaries, and the Fallopian tubes, have the task of nourishing the fruit during the first nine months of its life. The womb, which lies in the middle of the upper space of the small pelvic cavity, appears in virgins in the shape of a cone pressed flat from the front to the back, and having a greater extension in length than in breadth. In women who have already borne children the womb shows a pear-shaped form; its normal position is above the vagina, between the bladder and the rectum. It is at its upper portion inclined somewhat forwards, and this upper portion, towards the peritoneal cavity, is covered with the peritoneum. The walls of the womb are very richly endowed with blood vessels, but, on the other hand, contain relatively few nerves and muscular fibres, and enclose a very narrow, three-cornered hollow cavity which terminates in a canal. The hollow cavity of the uterus is, in comparison with the thickness of the walls, extremely narrow. The uterus is divided into three portions. The upper, thicker, rounded portion, is called the fundus or base (Fig. 425, 1); the middle or narrower portion, the body (Fig. 425, 2); the lower portion, which lies somewhat back, is roundish and flattened, and is called the neck (Fig. 425, 3). The uppermost portion of the womb stretches into the peritoneal cavity, and somewhat into the windings of the small intestine. The fundus and the body of the womb lie between the front wall of the rectum and the back wall of the bladder. The neck, however, stretches somewhat into the vagina, it is therefore also called the vaginal portion of the womb (Fig. 425, 4). The inner three-cornered smaller cavity (Fig. 425, 9) is narrowed, as already explained, to a canal (Fig. 425, 7), which takes its way through the neck and opens out into the vagina. The narrowest portion of this canal, and that which lies nearest to the fundus, is called the inner orifice of the womb (Fig. 425, 8). At the opening of the neck into the vagina, the rounded ends of the neck (Fig. 425, 4) form a transverse fissure or cleft, which is

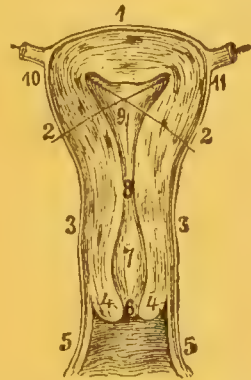


Fig. 425. The Womb.
(Section of the same, about
half the natural size.)

surrounded by two margins or lips, the front one longer and the back one shorter than the other. This transverse fissure is called the external orifice of the womb (Fig. 425, 6). The womb is held in its place partly by means of two tendonous cords, which are to be found on the two sides of the edge of the womb, under the places where the Fallopian tubes enter into it, and which are attached to the inguinal canal, and which are called the round uterine ligaments; partly by the peritoneum, which clothes the upper and middle portions of the womb, and which joins the broad uterine ligaments with the neighbouring organs by means of sideward reduplications; and finally, partly by the vagina by means of the way in which this is joined to the surrounding organs in the small pelvis and to the neck of the womb.

The Fallopian tubes represent the connection between the womb and the ovaries. The Fallopian tubes (Figs. 425, 10 and 11) are two tubes of skin, which both open out into the fundus of the womb. They extend in the upper edge of the broad uterine ligaments which represent double transverse folds of the peritoneum between the two laminæ of the ligaments, and end in the form of a band below the ovaries, in cup or flap-like recesses which are called fimbriæ. The fimbriæ possess the property of being able to broaden the opening of the Fallopian tubes into the shape of a funnel, while they raise themselves to the ovaries to take the ovum. The Fallopian tubes possess muscular fibres for the purpose of propelling the ovum.

The ovaries lie on both sides of the womb in a fold of the peritoneum, which forms the two broad uterine ligaments under and behind the Fallopian tubes. They exhibit egg-shaped and somewhat flattened glands of about the size of an almond. In their tissue (a firm fibrinous mass) is found a number of bright round vesicles, of about $\frac{1}{30}$ to $\frac{1}{10}$ of an inch in diameter, which are filled with a light yellowish fluid. These little vesicles, or sacs, are called the Graafian follicles. In these follicles, which were formerly erroneously thought to be the eggs themselves, are found within the fluid other little vesicles, each of which is about $\frac{1}{300}$ of an inch in diameter, and in which one can, with the aid of a very strong magnifying glass, see quite clearly a nucleus in the form of a vesicle—the germinal vesicle, as well as the yellowish yolk. In the ovary of healthy, young, strong women, from 30 to 100 such follicles are often found, while, on the other hand, in

those of sickly, weakly, or elderly women, there are only found five, ten, or fifteen, and occasionally none at all.

The vagina (Fig. 425, 5) lies below the womb. It exhibits a somewhat curved tube of mucous membrane, from three to four inches in length, and encloses, with its upper portion, the neck of the womb in such a manner that the vaginal portion of the womb extends freely into it. The vagina extends backwards higher up, and so forms a cul-de-sac. The place where this encloses the neck of the womb is called the vault of the vagina. In front the vagina is bounded by the wall of the bladder and the urethra, and at the back by the wall of the rectum. The vagina consists of an elastic, firm skin, and is lined with mucous membrane, which contains numerous mucous glands, protuberances, and transverse folds. The entry of the vagina, or orifice of the vagina, which is found lower down, is more or less closed in the state of virginity by a prominent, half-moon-shaped fold of the mucous membrane of the vagina. This fold of mucous membrane is called the hymen; it is destroyed by coition. On the two sides of the orifice of the vagina lie the Bartholinian glands, which secrete in the vagina a thickish, tough mucus, which usually flows more freely in the act of coition. The mucus secreted by the mucous glands of the vagina is milky and slightly acid, whereas the mucous membrane of the womb secretes an alkaline mucus.

The larger and smaller pudenda, at whose foremost point is situated the so-called clitoris, form the external sexual organs, the vulva. Their further description seems superfluous here.

The glands of the breast, the lacteal or mammary glands, as already stated, stand in the closest reciprocal relation with the sexual organs. Their development goes on simultaneously with the maturing of the ovaries and their changes, and with the changes undergone by the womb in pregnancy. As soon as the fœtus is born, the mammary glands reach their highest stage of development with the secretion of milk. The lacteal glands are grape-shaped compound glands, which are formed of an infinite number of small vesicles. The vesicles unite to form lobules, from which at first small, and then increasingly larger excretory ducts proceed. These finally unite to form the milk canals. These, in turn, likewise stand in connection with each other, and open out altogether into the so-called sinus lactiferus, or

milk sac, from which a fine excretory canal leads to the nipple of the breast and opens at its point.

Women's Diseases, General Instructions for the Treatment of.—Before commencing my remarks as to the various forms of diseases of women (in order so far as it is serviceable and useful to place a woman in a position to judge correctly for herself and to treat herself), I will first give some instructions as to how women who are suffering from any disease of the abdomen in general should act.

In the case of an inflammatory condition that has just arisen, and which is accompanied by feverish symptoms, a woman ought not to sit or stand, or go about at all, but must maintain a quiet, horizontal position. It is best for her to remain in bed, and this holds good where, in the case of a chronic trouble, inflammatory or feverish symptoms arise, and especially when menstrual bleeding sets in out of its usual time. Not only the body, but the mind also must rest in case of any disease of this kind, and be guarded from every excitement and disturbance whatsoever. The position of a woman in bed must, as far as possible, be perfectly straight, she should lie on her back. The pelvis must in general not be much lower in position than the shoulders. The legs may then, in this position, be somewhat drawn up towards the abdomen, in order to effect a relaxation of the muscles of the abdomen, and so diminish the pressure on the abdominal organs. It is best for women who are suffering from any abdominal disease to lie upon a horsehair mattress, or a mattress filled with sea grass. Feather beds are heating, and increase congestion of blood in the abdominal organs. If, however, the bed arrangement of the house will not allow a mattress, then at least there should be placed upon the feather bed, under the vascular region, a sufficiently large cushion, filled either with horsehair or with sea grass. Since the general health, however, suffers by long confinement to bed and long lying, through loss of appetite, constipation of the bowels, relaxation of the muscles, weariness, etc., it is in any case advisable that the patient should occasionally interrupt the resting condition by walks of short duration up and down the room. As soon, however, as the slightest pains in the abdomen arise, or as soon as there is the slightest feeling of general exhaustion or fatigue, the patient must at once return to her couch. If the patient sits upon a chair, she should use an air cushion (see page 412), but

never continue sitting long enough to cause a commencement of pain in the iliac region, the hips, or elsewhere. It is a fact, which experience has taught us, that women who suffer from illness in the abdominal region always find sitting for any length of time troublesome. The wearing of the T bandage (see page 494) is very useful for women who are suffering from abdominal diseases, and it should be worn day and night, and renewed immediately it becomes hot or troublesome. The T bandage, or iliac pack, is not only useful in combination with other things, but is part of a process of treatment which will be spoken of later on, for the exercise of local influences on the site of the disease, at the same time it also serves to support the internal organs, and presses them both upwards and backwards, and prevents them from exercising pressure upon the morbidly affected womb. The dietary for a woman who is suffering from disease in the abdominal region should be strictly in accordance with the principles of the Natural Curative Treatment, mild, stimulating, and easily digested; the patient should partake of a great deal of fruit both in the raw and in the cooked state, eat bran bread, bran soups, etc., so as to keep the digestion in order. Juicy vegetables, potatoes cooked in their skins, light milk puddings, egg puddings, farinaceous dishes, stewed rice, etc.; salads prepared with olive oil, freshly-squeezed lemon juice, now and again lean meat, fish, oatmeal, beef and mutton, game and poultry, with the exclusion, however, of goose, duck, and fat kinds of fish, etc., may form the chief articles of diet. Wine, beer, fat meat, and rich dishes composed of fish, and, in general, leguminous vegetables, must be avoided. All women suffering from abdominal disease must be strongly advised to entirely avoid sexual intercourse, or at least to limit it as much as possible. If there is any disposition to hemorrhage, or if the womb is inflamed, sexual excitement produced by coition may have very bad consequences. Changes of position, flexions, bendings, etc., of the womb, do not, as a rule, forbid sexual enjoyment; still, this must in general be avoided, if, during the act of coition or immediately after it there are pains in the womb, or in the iliac region, or in the hips or groins. In general, the treatment of diseases peculiar to women must, on the one hand, be directed to influencing the affected parts, and, on the other hand, to raising the general health, for the reader who has intelligently perused the first part of this book

already knows that local diseases stand in very close relation with diseases of the general organism, in many cases the local disease is, in the first place, the result of the general malady, or of some other local disease. A woman who is suffering from any abdominal disease must therefore, when she cannot recognise her own condition (and it is in few cases possible for her to discover the real causes of her illness), before all things observe the rules of the General Strengthening or Tonic Treatment. As to the local treatment, she should make use of sitz vapour baths and foot vapour baths; sitz baths at from 81° to 89° F., trunk baths at from 81° to 85° F., iliac packs at from 73° to 77° F., enemas at 77° to 81° F., in combination with subsequent enemas at from 68° to 72° F., etc. All the applications described must be carried out in their proper sequences, and each one for the proper length of time prescribed, and with the observance of the requisite intervals. From these means the patient will, in the great majority of cases, find satisfactory results. In addition, many cases require the Thure Brandt massage of the abdomen and pelvis (see under this head in the Index). This often proves a very valuable curative agent, in addition to the other hydropathic applications. At the same time, this should never be attempted until after a careful and exact local examination, carried out by a medical specialist (gynaecologist), who is also a Natural Treatment physician, and then the treatment must be carried out by an expert. In other cases the Kuhne treatment is accompanied by the best results. (See under this head in the Index.) The application of the cold sitz bath (under 72° F.) is to be avoided in any case of self-treatment, since this is only suitable for special cases, which the patient herself cannot possibly recognise.

Shortly before the commencement of the periods, or during these, as well as a short time after them, all hydropathic applications, massage, and hygienic gymnastic exercises are to be discontinued. At the very most, and in suitable cases, it is advisable during the period, in the case of possible abnormalities, to make use of stimulating vapour compresses on the lower abdominal region, and light general dry friction, as well as of mild massage of the abdomen. And now, finally, to conclude these instructions with a most important observation:

A woman who is suffering from any disease of the abdomen should not allow herself to be irritated or burnt

(cauterised) in the "highly scientific" manner. She should not be cut or strapped up, nor should she allow an injection of anæsthetics such as morphia, etc., or laying on of ice packs and so on; for although one may, by these means, at the cost of the general organism, probably suppress certain morbid local disease symptoms for a short time, they can by no means effectually and permanently remove the disease or the primary trouble. The medical specialists who study women's diseases may say, when speaking of new growths in the internal feminine sexual organs, or in the glands of the breasts ("away with them"), for he has no care or thought of the "whence" of the cause and source of the trouble. We, however, who know that internal or external new growths always arise from a faulty composition of the humours, ask, in the first place, "whence are these," and are in no difficulty as to the "whither," since the Natural Curative Treatment, without operations, has quite sufficient ways and means for causing a disappearance of new growths (tumours, swellings, proliferations, cysts, polypi, etc.), causing them to disappear entirely by way of absorption, without leaving any trace behind; painlessly, permanently, and without injury to the general organism.

I will now go on to discuss the special forms of the diseases of women.

Breasts, Care of the.—I have already shown, on p. 1471 that the milk and breast glands are connected with the internal sexual organs, and that menstruation arises in these glands. Their development begins with maturity, and a well-formed breast is a proof that the girl has attained puberty, and that the internal organs are in working order. The physiological connection between the breasts and the internal organs is based upon the functions of the former, the child before birth being nourished by the blood vessels of the womb, but afterwards the milk of the breast is his first food. It is a mother's natural duty to feed her child, and suckling is necessary to maintain her health. Every woman should therefore, from the time of their development, pay special attention to the care of the breasts, to prepare them for the beautiful duties lying before them. But only a healthy woman can fulfil this great and sacred maternal duty; only a woman with wholesome, pure milk, and well-developed breasts, can carry out a function which is of the very highest importance to her child's welfare. A well-developed breast is only found

on perfectly formed frames, and in healthy action of the functions.

The shape of the breast must be well rounded, but, unfortunately, healthy well-proportioned breasts are exceptional now-a-days. The injurious effects of culture are constitutional diseases, such as poverty of blood, pallor, hysteria, scrofula, tuberculosis, etc. The effects of wearing a corset are the reasons why Dame Nature is obliged to resign the formation of the breast to the dressmaker. Fashion also takes care that a fine bust is pressed down and deformed. A natural, fully-developed breast should support itself firmly; it should be elastic, not too flat, and yet not too prominent. It should spring from the chest in a perfect round mass, and taper at the nipple. Fig. 426 represents such a development, while Fig. 427 shows just a contrary picture of this womanly beauty—a limp, hanging breast. The development of a beautiful figure depends upon the general health, the digestive functions, and the growth. How to obtain good health, and maintain it, my reader may learn in the first part of my book "Hygiene." The observance of these general rules should go hand in hand with local care of the breast. Anything and everything that contracts, displaces, or presses on the breast, must be avoided, and care must be taken to protect it from cold. It should be washed daily, in water 66° to 68° F., gently stroked and rubbed with the open hand, and refreshed by exposure to the air. These measures will all contribute to a good development and the wellbeing of the breasts.

Breast, Distension of the, during the first Period of Menstruation, at Puberty.—It frequently happens that a young girl's breasts distend, and are painful at the first appearance of menses. In many cases the very least pressure, even of her linen or outside clothing, is unbearable. It is not a serious state of things, but it is very tiresome. It disappears spontaneously as soon as the menses flow regularly, or at any rate when they cease. But if the breast becomes red, and feelings like pricking, burning, drawing, or even heat, set up, follow the instructions given under article "Breasts, Inflamed, etc.," as regards local treatment, and lay on stimulating body bandages at 77° F., as well as thick extra compresses on the abdomen from the navel downwards, to draw off the pain.

Breasts, Falling away of the.—Should the falling away, shrinking, or shrivelling of the breasts not be the result of

a too-extended suckling, it may be a co-symptom in diseases of the ovaries and womb, and the treatment must be applicable to the main cause. But if it comes after unduly protracted nursing, the rules for the General Strengthening Treatment, carefully followed up, will materially help in fortifying the patient's constitutional powers.

Breasts, Inflamed; Swelling of the Breast; Milky Tumours.—Inflammation of the breast, either or both, is generally found in women who will not nurse their child, or who have been under injurious influences of some kind or other during their confinement. Inflammation sets up in many ways. If the tissue under the skin only is affected, the nipple is red, swells, and gives pain. If the inflammation is not confined to the nipple, the redness and swelling extend all over the breast, accompanied by fever. If the swelling does not go down, it festers, and this is called broken breast. But it may also arise from a sore nipple, caused by a push or blow, cold, etc. It may set up under the milk glands, and display no outward symptoms, as redness and swelling, but only occasion a sensation of tightness and pressure in the breast. After some time, however, swellings will come on, containing matter, which generally penetrate into the cavity, and may set up suppuration and inflammation of the chest bones and membrane. If the whole breast is affected, it will be hot, red, tight-drawn, and much swollen. It is extremely painful, and lumpy to the touch. This is accompanied by inflammation of the axillary glands, the pain increases, and in a few days the breast swells and discolours. Shivering introduces the festering stage, which may become fistulous. If milk is still present, and the matter gets into a milk passage, milk fistula is formed. After the inflammation has come to an end, and the abscess is closed, lumps are formed in the distributed particles, and the callosities in the surrounding tissue, which are termed milk tumours, if they occur where milk is present. These are generally caused by inflammation resulting from a cessation of hemorrhage after confinement, a chill, unsuitable or heating food, sudden interruption of milk-separation, forcible expulsion of the milk, not using the affected breast, defective management in nursing, premature weaning of the child. The "lumps," and the subsequent inflammation, develop as follows in nursing mothers: The breast first appears fuller, distended, and heavier; it is sensitive to touch, and its weight becomes painful. The

milk becomes sparse, and suckling increases the pain, for the baby, discovering the want of milk, sucks harder and presses the nipple to and fro. The breast is now red up to the armpits, and is hot and swollen; the nipple is extremely painful. High fever, restlessness, depression, headache, want of appetite, constipation, are the accompanying symptoms. As the disorder grows, dark red spots on the skin appear around the breast, gatherings set up with throbbing pain, which break and discharge more or less pus. Abscesses form in different parts of the breast, internally connected with one another. Often some of them close, and others break out afresh. With patients suffering from faulty admixture of the humours, especially of a scrofulous nature, the inflammation may go on for months, and even after all the openings have closed hard lumps are left.

The treatment, locally considered, must be counter-inflammatory, reducing, and anti-febrile. Lay on the breast, if the inflammation is deep-seated, stimulant breast packs, 73° to 77° F., together with extra compresses of the same temperature. If the inflammation is very advanced, apply soothing, fairly thick compresses (not too wet), 77° to 81° F., renewing them when heated. Alternate the soothing compresses occasionally with stimulating compresses at 68° to 72° F., to bring the abscess to a head. If circumstances permit, apply vapour compresses throughout the inflammation, or moisten the sore breast with Malten's vapour douche (Fig. 133). The application of damp heat is specially recommended when the stimulant compresses are not able to purge the accumulation of humour and clear the vessels. If abscesses have formed, use stimulating compresses at 77° to 81° F., interchanged with vapour compresses, and frequently damp the breast during the day. Lumps must be treated alternately, by changing the vapour compresses and moistening the breast. (For further details of these applications, see pp. 511, 513, 596, and the article "Abscess.")

The soothing and anti-febrile treatment consists in taking for a quarter-of-an-hour, three times a day, trunk baths at 82° to 86° F., or sitz or half-baths, 84° to 88° F., for ten minutes; or the daily application of one or two whole or three-quarter packs, 77° to 81° F., for about two or two-and-a-half hours. Administer relaxing enemas, 77° to 81° F., twice or three times a day, followed by small cold ones, 64° to 68° F.; occasionally gentle, brief, bed vapour baths No. 1 to 4, or foot vapour

baths, as may be required, to restore the patient's reactionary powers, before using the above-mentioned cold water applications. (See "Treatment of Fevers," II., Part VI.) On the intervening days wrap the patient in a body bandage, 73° to 77° F., and cover the body from the navel upwards with an extra thick compress of 73° F. The bandaging should be used at night as well, but, at the same time, apply packs to the calves of the legs, 64° to 68° F., or a bed vapour bath No. 4. It should be remarked that the breast must not be left hanging down, but should be bound up, though no pressure must be felt. (See "Bandage.") The diet should be plain and digestible, and strictly vegetarian. If the symptoms of feverishness, distension, and sensitiveness of the breast have gone, and suppuration set up, the suppression or diminution of the milk again ensues, the baby can be put to the breast again, as suckling is less painful.

Breast, Neuralgia in the Female.—Neuralgia in the breast is one of the most painful of the many forms of disease to which women are subject. It arises from a general nervous condition, or in constitutional illness, and generally attacks hysterical, pallid, anæmic women and girls, at ages varying from fourteen to fifteen up to thirty years. On examination of the breast we do not discover anything unusual. Sometimes small lumps about the size of a pea occur, which are easily moved, and may be the root of the pain. The breast is very sensitive to the touch, either at one or many spots. If the pain extends, it is in the direction of the shoulders and loins. They often set in just before the menses are due. The pain is very wearisome, and may last for years.

The treatment goes to the source of the trouble. Follow the instructions given under "Bloodlessness" and "Hysteria," and those of the General Strengthening Treatment. Palliative remedies for the relief of the unbearable pain are light vapour compresses, and moistening by Malten's vapour douche (Fig. 133).

Breast Tumours, Cancer of the Breast.—Hardenings in the breast may be of an innocent nature, as well as the reverse. Every woman may suffer from them, married or single. Pressure, a push or blow on the breast, constraint, pressure of the corset on one and the same place, abnormalities in menstruation, may be the cause of them. Their formation is favoured by certain constitutional maladies, scrofula, tuberculosis, etc. External mechanical injuries, such

as a push or blow, may cause tumours, but these are of an innocent nature. One of the most malignant formations is cancer, which is generally ascribed to heredity. For some time its development seems of an innocuous nature, movable though not elastic lumps, with pricking, and, at first, recurrent pains. A little later the lump is very painful if touched. The pain increases to such an extent, that the sufferer feels as if a red-hot needle were thrust from her armpits to the nipple. The skin of the breast becomes yellow and dry, the veins start up, the lump changes into a hard immovable swelling, that discharges, festers, and exudes a bloody offensive matter, with a peculiar smell, from several openings, which finally demolishes the swelling.

The cancer extends over the whole of the breast, or, again, over a part only, or it hardens in a certain limited space in the form of little knots and lumps, which, in their growth, displace the breast glands. Cancer may be either hard or soft, and at the same time as cancer of the womb. It attacks women of the age between thirty-five and fifty, and sometimes lasts five years before, if left to itself, it ends in death.

As in cancer of other parts of the body, even the Natural Curative System is powerless to arrest a fully-developed case. The only chance of a cure is when the disease is taken at a very early stage. At the time when the lumps denote cancer, should the constitutional strength of the patient permit, a strictly carried out course of treatment should be adopted. Operations, such as removing the lumps, or the entire breast, are of no use, for a faulty admixture of blood is the result, and this tends to the spread of cancer. Single, innocent swellings, may be treated with stimulant compresses, alternate vapour compresses, and moistening the breast with Malten's vapour douche. A general treatment, including body, sitz, bed vapour, foot vapour baths, stimulant, entire, or three-quarter packs, nightly stimulant body and leg packs, according to the patient's particular constitution, may be used as recommended in a previous article, "Breasts, Diseases of the." The breast may be massaged very gently, with circular movements, and the lumps gently rubbed, but this should be done in the manner set out on p. 650. In many cases the General Strengthening Treatment, and a modified abstaining treatment, may be suitable. Massage of the whole body once a day, or every other day, is also effectual. The

Plate XIII.*

Fig. 1. Female mammary gland.

a. Nipple.

b. Ring of nipple.

Fig. 2. Female mammary gland (view in profile).

Fig. 3. Gland lobules of a suckling woman.

a. Milk ducts.

b. Gland lobules.

Fig. 4. Gland lobules and milk ducts of a suckling woman.

a. Section of the nipple.

c. Milk ducts.

b. A widened and winding milk duct.

d. Gland lobules.

Fig. 5. Mammary gland of a suckling woman.

a. Milk ducts.

c. Fatty connective tissue.

b. Gland lobules.

* Further information will be found on pp. 1471 and 1475 to 1481, in chapter on "Diseases of Women."



Fig. 1.



Fig. 2.

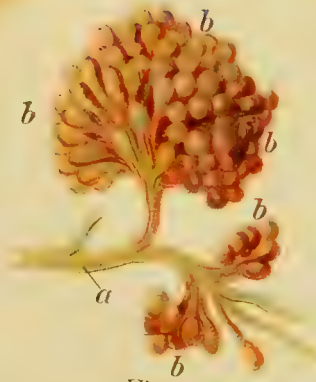


Fig. 3.



Fig. 5.



Fig. 4.

diet should be low, plain, and digestible. Constipation should be obviated by enemas. The terrible pain may be relieved by moistening the breast several times a day, cleansing it by gently syringing it out with previously boiled water, cooled down to 86° to 90° F., and then covering it with a thin layer of moist, chemically-purified wadding. To reduce the swelling, take two or three baths, 84° to 88° F., one day, for five to ten minutes; on the next, sitz vapour baths, or foot vapour baths; at night, stimulant packs on the lower part of the back, 77° to 81° F., and on the calves, 68° to 72° F., or bed vapour baths No. 4. The entire regimen should be founded on the rules laid down in the General Strengthening Treatment, as to diet, exercise, rest, light and air.

Bust, Abnormal.—This is generally an accompaniment of general stoutness, and in reducing the one will be found the remedy for the other. But it sometimes happens that it does not depend on this condition of great corpulence, but arises from a species of hypertrophy of the breast. It becomes very marked, after the birth of the child, in suckling, for the adipose deposit presses so heavily upon the milk glands as to decrease the quantity of milk. Women of great physical powers, who have a copious supply of milk, are liable to it after weaning the child, when it is caused by the persistent flow of juices to the breast.

The treatment is that laid down in the article "Obesity (Corpulence)." Simple digestive food, out-door exercise suitable to the patient's powers, active domestic life, proper care of the skin, etc., will soon set it right.

Gonorrhœa in the Female. (See Index.)

Menstruation—also known as the **Monthly Flow**, the **Period**, the **Monthly Purification** and the **Menses**—is, in the first place, a process which gives evidence of the sexual maturity of a woman, but not, at the same time, as is very generally but quite erroneously believed, an evidence of her readiness for marriage. A large number of other internal and external organic changes go on hand in hand with the commencement of menstruation; it would here, however, lead me too far afield to discuss them all fully.

The first time that menstruation appears, the flow shows itself as a pale, serous, or slimy, bloody secretion, which, although it flows from the external sexual organs, really proceeds from the womb. This organ is, during the process of menstruation, in a condition of hyperæmia (or over-fulness

of blood). The mucous secretion of the cavity (Fig. 425, 9) is increased, while, at the same time, blood exudes from its finest blood vessels. This blood sometimes shows a darker, sometimes a paler colouring, than that of ordinary venous blood. The return of the periodical appearance, the normal flow, is, in the stage of the first development, not yet regular. There may be six or eight weeks intervening between the appearing of the periods. Only gradually does the matter regulate itself, and then monthly purification sets in every four weeks, that is to say, there is exactly an interval of twenty-eight days between the beginning of the one period and the beginning of the next period, and every deviation from this regular recurrence, whether the interval be long or short, must be characterised as contrary to nature. The commencement of the setting in of menstruation varies very considerably, according to climate, mode of life and constitution, and sets in earlier in proportion as the climate is hotter. In the tropical zone, girls generally begin to menstruate with the tenth to the twelfth year of life; in the temperate zone, generally at the fifteenth year; and in the higher northern regions, as, for instance, in Sweden and Norway, at from the sixteenth to the seventeenth year. In Germany nineteen per cent. of the girls begin at the fifteenth year, eighteen per cent. in the fourteenth year, seventeen per cent. in the sixteenth year. Girls who are natives of towns, as a rule, menstruate much earlier than those who live in the country, since the generally prevailing mode of life in towns is much more contrary to nature than in the country, and is less favourable to the equal development of the whole organism than to the premature development of the sexual organs. All this offers an explanation of the fact that among the better situated classes the smaller and more weakly girls attain their sexual maturity earlier than the stronger ones, in whom the development of the complete organism has not been hindered by premature maturity of sexual life. Blondes generally have their periods at a later period than do brunettes. The period lasts normally, on an average, from three to five days. Whenever it is of shorter or longer duration, this may result from individual constitution of the woman, and be relatively normal, or may be characterised as abnormal, or may arise from the unsuitable conduct of the woman herself during the period. The condition in which the monthly purification lasts for less than two, or more than seven days, must be regarded as unquestionably morbid.

The normal flow is always at the beginning serous and slimy, and then becomes bloody, and at the end again serous and slimy. Dwellers in cities lose, as a rule, more blood than girls who live in the country, blondes more than brunettes, women of the well-to-do classes more than those of the lower classes of the people, and delicate women more than the strong. The process of menstruation is accompanied by a peculiar, sourish-smelling exhalation of the body, which, as women themselves know quite well, produces fermentation in materials that are capable of fermenting when they remain in their neighbourhood — milk, new beer, preserved fruit, for instance, easily turn sour when they are long in contact with the exhaled gaseous matters given off by the menstruating woman. The menstrual blood, if only the tiniest and most insignificant drop of it comes in contact with matters capable of fermentation, exhibits the same property.

Menstruation represents, in its external appearance, a whole series of internal processes of the female sexual organs which have only and alone the object and aim of reproduction, of the perservation of the species, in view. They are wholly and solely to be regarded as the preparations and preliminaries for conception and pregnancy, whether these take place or not. One must, however, not at all consider the process as if it were the periodical effort of the womb to free itself from a condition of hyperæmia, and to remove an excited state in the sexual sphere. Somewhat more correct is the view that the monthly flow of blood of women has some analogy with the period of "rut" or "heat" among the lower animals. It is well known that among the domestic animals during the time of "rut" there is also a great congestion of blood towards the womb, and very often an increased secretion of mucus out of the generative passages. But, by reason of the circumstance that, in the case of the woman, the congestion in the womb and the sexual excitement produced thereby, are removed by an evacuation of blood which, in the case of the lower animals, is entirely wanting, the kind and always wise Mother Nature has let us know unmistakably that the human female is not subject to the animal "rut," but, as a clever, well-known women's doctor remarks, "is meant to have full moral liberty and control over the organic warnings and suggestions in the sphere of her sexual existence, such as should accord with the dignity of humanity."

The period is therefore to be regarded only as the beginning of a striving of nature for the upholding of the human species, that takes place at fixed intervals of time, in which, also, one should see the preparation for a possible fecundation and pregnancy. The internal processes whose presence is manifested by the external appearance of the flow of blood are the following: Within the Graafian follicles, already mentioned on p. 1470, an egg develops. When the egg is ripe, whether it be in the right or left ovary, then there flows, in consequence of a congestive stimulation, a stream of blood to that ovary, in which the ripe ovule or egg is present. The follicle then bursts, and the ovule, swimming in its fluid, is expelled. It then enters into the opening of the Fallopian tube, which, in consequence of the increased access of blood to the follicle, has, at the same time, broadened out into the trumpet-shape, and is led away to the fundus of the womb by reason of the worm-like contractions of this membranous tube, which is permeated with muscular fibres. The blood vessels of the womb, which, during this process, are also in a congested condition, produce a swelling up of the mucous membrane of the cavity of the womb, so that the mucous membrane is filled with the watery constituents of the blood so as to appear like a well-filled sponge. But also the blood vessels of the wall of the womb are overfull of blood, as a consequence of which the circumference of the womb is considerably increased. Then, gradually, the pressure of blood upon the finest capillary vessels that are in the mucous membrane of the cavity of the womb become so strong, that these capillaries can no longer resist it, and begin to exude blood. The bleeding then takes its commencement exactly at the point of time at which the follicle is just about to burst. In order to separate the ripe ovule, it requires, for its journey in the Fallopian tube, a time of from three to five days. In the case of a period that runs its normal course, the ovule has therefore arrived at the mouth of the Fallopian tube that opens into the womb (Fig. 425, 10 and 11) just at the end of the period, and fastens itself on to some point of the mucous membrane of the fundus of the womb, here to await fecundation.*

* It sometimes happens that the ripe ovule does not at all reach the cavity of the womb before being fertilised, but that this takes place beforehand, while it is still on its way thither in the

When the ripe ovule has left the follicle that has burst, then the latter closes up into a yellowish spot. When, however, no fertilisation of the ripe ovule that has been deposited on the mucous membrane of the upper portion of the cavity of the womb does not take place, then it perishes there, becoming liquefied and being absorbed. This may take place in from ten to fourteen days, hence arises the extremely important fact that the woman cannot conceive and be fertilised at every time, but only just at that time when the ripe ovule is still present in the cavity of the womb, where it is awaiting fertilisation, at a time when it is predestined to be fertilised. Fecundation, therefore, is most certain to take place just after the ending of menstruation, and within the fourteen days that immediately follow it. The smallest chances of fertilisation are presented within the last eight or ten days before the beginning of the next period.

In our Northern climates the period in which a woman is capable of fecundation in general lasts from the beginning of the setting-in of menstruation for about thirty years. Still, there are a large number of circumstances which may shorten or lengthen this period. Climate, bodily constitution, hereditary predisposition, frequent confinement, diseases such as scrofula, syphilis, tuberculosis, etc.; depressing affections of the spirits, such as cares of long duration, grief, social conditions of life, etc., have likewise an influence upon the duration of the period of fertility, as also the earlier or later setting-in of menstruation at the age of puberty. It has been observed that the exceptionally early or late commencement of menstruation at the age of puberty, generally has, as a consequence, an early cessation. As a rule, the periods, and with them the capability of the woman for reproduction, leave off at about the forty-fifth or fiftieth year of life. As in the case of the first setting-in of the periods, transitions show themselves at their leaving off, which normally give evidence

Fallopian tube. This, however, is only possible when the act of coition has taken place a few days before commencement of menstruation. The very mobile, infusoria-like constituents of the male semen, the so-called spermatozoa, which, when they are very capable of life, can remain alive for a very long time, and move themselves within the healthy female sexual organs, then find their way as far as the ovary, and on the way thither fertilise the ovule that is in the Fallopian tube. This then arrives in the cavity of the womb in an already fertilised condition, and there further develops into a *fœtus*.

that they are taking place by a diminution in the length of each period. The menstruation also then changes the length of interval between its regular occurrence, and gradually sets in less and less frequently as well as more moderately, and frequently leaves off altogether. These processes may take place within a few months, or, according to the individual constitution of the woman, may even last as long as two years.

In those cases where menstruation suddenly ceases, and then again sets in, there must certainly be assumed as the cause, either weakening and exhausting illnesses, or the after-effects of violent emotional excitements, and very grave conditions of health may result. The time at which menstruation normally commences to cease is looked upon in these our days of modes of life entirely opposed to nature, as a time to be greatly feared and full of dangers. This period is known as the change of life. I will, however, deal more fully with this subject in a further article.

Just as, at the commencement of menstruation, so at its cessation, a number of internal changes in the feminine organs are associated with the external phenomena. These changes affect, in the first place, the ovaries, which, at every moment of their changing constitution, condition the changing type of woman in her external appearance. The child, the growing girl, the ripe maiden or virgin, the woman, the matron—all these offer, in their external appearance, an expression of the internal condition of their ovaries at each successive period. The matron age of woman lets one know, by the outward type of her appearance, that her ovaries are in a condition of retrogressive metamorphosis. Now no more eggs ripen or are developed in the ovaries, but these latter shrivel up gradually to a firm, sinewy, cellular tissue. Hand-in-hand with the retrogressive metamorphosis of the ovaries there goes on an atrophy of the womb, which then, in its form, again returns to the condition of childhood, except in those cases where morbid conditions cause an enlargement of the womb and produce new growths therein. Likewise the mucous membrane of the vagina loses its transverse folds, and becomes smooth; the glands of the breast shrivel up—that is to say, in the case of thin women—or, in the case of stout women, they lay on fat and fill out. Also the external sexual organs change their form by the loss of their fat and their rounded appearance.

As I have already said on p. 1481, the commencement of menstruation certainly shows a sign of the maturity of the feminine organism, but does not at all indicate that fitness for marriage has at the same time set in, that is to say, that the organism has reached a state of development in which it is fit for fecundation and all its consequences. A woman is only fit for marriage when her growth as regards height is completed, when the skeleton is thus completely developed, and the cartilage on the joints of the hollow or long bones has completely grown together with these—that is to say, become bony. As a rule, this condition is reached in about two or three years after the setting in of menstruation. It is only after this time that a woman may, without injury to her health, be made fertile, nor is she, at an earlier period, in a condition in which pregnancy can lead, in a normal manner, to its natural end, and a child capable of life be brought into the world.

This short description of the anatomical structure and the physiological functions of the feminine generative organs will, it is hoped, suffice to make clear and intelligible the subsequent explanations of the various kinds of women's diseases, still, before I go on to a discussion of the various forms of disease, I should like to cast a glance over the causes that give rise to diseases of women in general.

The number of women who suffer from diseases of the generative organs is, in the present generation, so considerable, the forms of their diseases are so manifold and so embittering to life, that one may well be justified in saying that the half of all the misery of this earth would be removed if one could succeed in eradicating the so-called diseases of women root and branch, and yet at the same time very many women do not even know when they suffer from troubles of nutrition, such, for instance, as chlorosis, poverty of the blood, etc., or from nervous diseases, such, for instance, as hysteria, etc., even after these diseases have troubled them for many years, that the source of their troubles is to be found in the female generative organs. For instance, diseases of the womb especially make their presence known through disturbances of the digestive and nutritive system, without producing pronounced feelings and troubles in the womb itself.*

* As regards morbid symptoms and troubles which set in during pregnancy, or shortly before pregnancy, or shortly after a confinement,

The whole of the great and manifold series of symptoms of hysteria (see under this head), that many-headed monster, and all the pains, cramped conditions, delusions of the senses, disturbances of the intellect, etc., that belong to it, may, for the most part, be traced to their origin, that is, to some disease, organic change, or illhumour of the womb. It is therefore very important that women who suffer from this or that disturbance of the general health should consult a skilled and experienced gynæcologist, and have their sexual organs examined much earlier than they usually do at present, in order that any disease that may be present in one or other organ should not reach a more advanced stage, or a greater extension, or enter upon a chronic stage when cure is generally much more difficult. Local symptoms in the region of the sexual organs, such as slimy secretions, abnormalities in menstruation, pains in the iliac region, inguinal region, the groin or the hips, or pains immediately above the pudenda, already give a more distinct and pronounced indication of the site of the malady, although the pains which are not fixed to one place may also be the symptoms showing the presence of some other disease. The great predisposition of the generative organs of women to become diseased lies in the mucous, membranous, and glandular structure of these organs, and in their being so richly supplied with nerves and blood vessels, and in their many-sided and complicated functions. Very frequently nervous irritations of these organs and congestions of blood in them, of longer or shorter duration, take place, brought about by the monthly period, by sexual intercourse, by pregnancy, birth, and lying-in; then, further, there are the consequences of the unnatural mode of life led from childhood upwards; of faulty feeding, clothing and bedding; of dwellings and occupations, a lack of proper care of the skin, an insufficient amount of or entire lack of bodily exercise in the open air; further, there are the excesses and extravagances of modern life, in the form of balls, concerts, theatre-going, etc., and not the least among these, those that take the form of enervating sexual extravagances, of self-abuse, of the reading of novels, etc.; then also, there are depressing, psychic influences, of unhappy love, jealousy, grief, care, etc.; and finally, there is inherited

I refer the reader to the articles "Pregnancy, Rules for the Pregnant" and "Birth."

dyscrasia, all of which tend to make women become diseased in their generative organs. Barrenness, and the unmarried condition, are very often the cause of diseases of women in the sexual sphere.

One of the most prominent and prolific causes of women's diseases is the so-called corset, the traditional tying-in of the body. As I have already promised my honoured lady readers in the First Part of this work (p. 90), I cannot avoid giving my best attention to this special article of ladies' attire, and I will therefore devote to it quite a thorough and exhaustive discussion. In order, however, to have more influence upon my honoured readers in this matter, I will let a few of the highest medical authorities speak.

Professor Schweninger, M.D., says: "We are faced by the very grave fact that about eighty per cent. of our women are diseased, and diseased by reason of the corset, which stops the circulation of the blood."

The celebrated Professor of Hygiene, Dr. Paul Niemeyer, expresses himself, in his celebrated work "The Medical Adviser for Mothers," on the subject of wearing corsets, as follows: "How many a woman distinguished for education, and how many a noble wife distinguished for her virtue; how many an amiable and worthy mother have I seen snatched away, the victim of the most cruel torture and suffering; and when I have enquired into the cause of this incurable disease, so rare in the country, so common in the towns, it was generally found to be the quite innocent wearing of stays in youth."

In his celebrated work, "The Book of the Healthy and the Sick," the celebrated physician, the present Professor of Pathological Anatomy at Leipzig, Dr. Karl Ernst Bock, writes as follows on the subject of the corset: "The corset, which, in any case, should only be worn from the age of young womanhood upwards, and never, under any circumstances, by schoolgirls, requires to be so arranged that the most important organs and regions of the body—just that portion of the body which is for the most part most cruelly treated by the corsets at present worn—namely, the part just above the navel, the upper part of the abdomen—shall be allowed to retain plenty of room for its free play. The region at which, externally, on both sides, the two lower ribs, and in the middle, the stomach, are found, covers the most important vital organs of the whole body in its internal portion above the diaphragm—

the heart, the lower portion of the lungs, close below, the liver, the stomach, and the spleen. When this region is closely bound round, all these organs are forced together, and compressed and hindered in their activity. Indeed, it is quite common to find deep indentations on the deformed liver, and sometimes also on the spleen, which are made by the ribs and the pointed end of the breast-bone. Such a crippled and deformed spleen and liver, with these marks of tying-in, are no longer capable of renewing and purifying the blood, or of taking their proper share in the formation of gall and bile. If, then, the great injuries which the binding together of the upper abdominal region brings about are to be got rid of, then the corset must be so made that it only confines the body below this region and above the hips, and that loosely, whereby also the figure would be improved and a certain support would be given to the abdomen. Such a corset would only be laced at a small place below this, and above it would be quite loosely bound. On the hollow formed by the hip, artificial hips may be worn, if so desired, in order to help to support the under-clothes. At each side a broad elastic band should be let in, in order to allow the expansion of the upper region of the abdomen. The under-clothing, the petticoats, etc., as well as the corset, cause injury to the upper part of the abdomen, when they are only retained by simple waistbands or tapes. This is clearly shown in the case of the liver, which receives, from this cause, a deep transverse pressure, which often causes inflammation of its capsule. In order to prevent this, the underclothing should either be fastened on to the corset or held on by shoulder straps, or, by means of the so-called round band, made to rest upon the hips."

Professor L'Hermet says: "When through the tight-lacing of the corset the female trunk is restricted, the natural circulation of the blood is checked, and there arises in consequence not only an ugly expression of countenance and an impure complexion, but malignant diseases are also caused. The rumbling in the stomach so common and so troublesome among women is wholly and solely caused by the pressure of the corset on the stomach." Further, a well-known educationalist declares it to be desirable that in every case schoolgirls should do without that article of clothing. It has often happened, he says, that pupils have fainted during lessons, only because they were too tightly laced; and that

others, on account of this same corset, had to refrain from taking part in the strengthening gymnastic exercises. But enough of documentary evidence.

All teachers and students of hygiene, without exception, have all along waged war against the evil, one might almost say the immoral custom, of wearing corsets, and for the following reasons:

1. Through the tight-lacing, the thorax, which should naturally be broader at its base than at its upper portion (see Fig. 426), is so squeezed together that it takes on a form that ends in a point below (see Fig. 427).

2. In consequence of this squeezing together, the spinal column becomes curved.

3. Various abdominal diseases are caused, especially when the region of the stomach is continually pressed by a busk. Ulcers of the stomach, in some cases also, at a more advanced stage, cancer, and other diseases of the stomach, are by no means rare as consequences.

4. Various liver diseases are caused, above all, the so-called constricted liver. This deformity of the liver distinctly shows the impress of the ribs on the right and left lobes of the liver, and the pronounced transverse furrow on the upper surface of the right lobe of the liver. The peritoneal covering of the liver is very much thickened at this furrow, and the tissue of the liver has vanished under the pressure. As a matter of course the liver must, in such circumstances, perform its functions very imperfectly. Above all things, it is very common for the disease (so dreaded on account of its terrible pain), the so-called gallstone colic, to arise. This disease, which, according to exact statistics, has been shown chiefly to attack adult women, is characterised by periodic attacks of pain, which are so violent that they may sometimes cause the sufferer to tear the flesh from her face with agony, and to behave as if insane. In consequence of the incessant pressure of the corset, a larger or smaller quantity of stones are formed in the gall bladder. These stones, when they are carried out with the fluid of the gall through the comparatively narrow exit, the ductus choledochus, stick here, and in this way produce the frightful paroxysms of pain. The pains only leave off when the stone has passed through this duct, and has reached the comparatively roomy duodenum. Most ladies, especially corpulent ones, live in a perpetual state of mortal dread on account of the corset. This circumstance

finds its explanation in the faulty circulation of the blood caused by the wearing of more or less tight corsets. Above all things, the passage of the blood through the lungs is unable to go on properly, since the lungs are pressed together by the corset, but the desire to make oneself, by means of the corset, more slender than nature has willed it, has not only caused many diseases, but has frequently been the direct cause of death. Every day, during the ball season,



Fig. 426. The Natural Bodily Form of Woman.

one hears that here and there a lady has suddenly broken down in the middle of a dance, and, according to the medical opinion, has died from paralysis of the heart consequent upon tight-lacing, and not all of such sad cases by a long way get into the papers, for some of the sufferers escape with their life, and shame will not, as a rule, allow them to let it be known how they have been punished for their vanity. Vanity, yes, that is it, that is the root of the evil. The mothers, who have themselves not been properly brought up, also train their daughters to cripple and de-

form themselves. Can it be seriously believed that the laws of nature allow themselves for any length of time to be defied with impunity? Whoever has had the opportunity of seeing a tightly-laced lady undressed in the evening, will have remarked that the moment the stays fall off, a deep, happy sigh of relief is wrung from the pained breast, and not seldom there is added, internally, "Thank heaven!"

It is supposed that the corset beautifies the female form, that is all. Yes, what is the beautification produced by—

the corset? Only unintelligent men and the dissipated can possibly admire a wasp-waist. Those, however, who are accustomed to look upon everything exactly as nature formed it, as the essence and ideal of perfection and beauty, will never adore a laced-in dupe of fashion, whose waist looks as if it would snap in half at the first breath of wind.

Health, that is woman's greatest beauty. If the health suffers through tight-lacing, then the body decays and becomes a premature ruin. Mothers who wish that their daughters should preserve the greatest blessing in life, and with it at the same time true beauty, may well follow the advice of Schweninger, and other sensible doctors, and not hunt about for grounds of excuse for a folly which, even if it be sanctioned by the almighty goddess Fashion, must inevitably destroy the health of the present and future generations, must undermine the public health, and bring about a national decadence. It is hoped, therefore, that the two pictures, Figs. 426 and 427, of which one represents a healthy, and therefore beautiful woman, with a noble and harmonious form, who has never worn corsets, and the other a diseased, and therefore unlovely woman, whose body, through the influence of stays, has been deformed and twisted, and who represents the general type of the woman of the present day, may make a lasting impression on my honoured lady readers.

For those women and girls, however, who will not take what would certainly be the best course, that is, entirely give up wearing of corsets, I recommend the corset depicted in Figs. 428 a and 428 b, which is the invention of the present writer, and which, at any rate, satisfies the most important requirements in regard to the preservation of health.

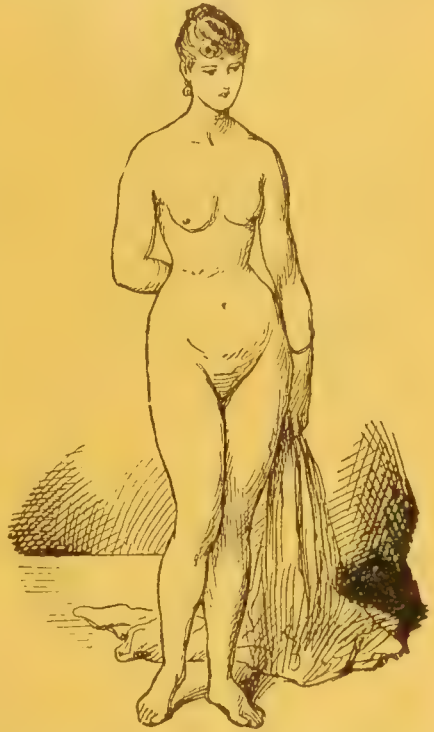


Fig. 427. The Form of Woman Deformed by the Wearing of Corsets.

This corset has the following characteristics: 1. It answers exactly to the structure of the body. 2. By being made of ventilated material, a kind of network, it fulfils one of the most urgent requirements of hygienic clothing in regard to porosity. 3. The extreme flexibility of the bones and busk, the insertion of which could not, in consequence of the present requirements in regard to the correct shape



Fig. 428a. Platen's Hygienic Corset
or Binder-Belt.
(Anterior view.)

of the dress, be avoided, enables one to avoid every injurious pressure on the internal vital organs, especially upon the stomach, liver and spleen. In the same manner the lower abdominal regions suffer no injurious pressure whatever. 4. The absence of india-rubber bands round the waist prevent the wearer of Platen's Hygienic Corset from being deceived and misled by the elastic properties of indiarubber, into binding the corset too tightly. 5. Both breasts are held in their natural position by a fastening that crosses over

from the shoulder straps, running diagonally across the breasts. In this sash-like fastening they are gently raised, but not pressed upwards, the easy displacement of the shoulder-straps allowing the fitting of the "breast-supports" to every form of bust. 6. So-called "hanging breasts" are improved by the continuous wearing of this corset, and by the assistance of other dietetic curative factors mentioned elsewhere in this book, so that in time they gradually resume their normal form

and position. For suckling women especially this corset possesses great hygienic advantages, which are, however, increased by the ease with which the breast support can be unfastened, so as to allow both breasts to be freely bared. 7. The mobility of the shoulder-straps renders possible an easy, steady, and unhindered respiration, as well as freedom in every other movement of the upper part of the body. 8. In consequence of the specially and peculiarly constructed displaceable fastening at the back, and the entire absence of all pressing buttons, all tightening-in and lacing are avoided. The corset is tightened or loosened wholly and solely by one single grasp of the hand. 9. The long-continued use of a corset that answers to modern requirements, and is therefore highly injurious to the health, is, as a rule, the cause of the wearers of this instrument of torture being to a greater or less extent afflicted by relaxation and weakening of the muscles of the back. In order that these muscles may recover their strength — only for this purpose — Platen's Health Corset is provided with a comparatively stiff piece of whalebone down the back. 10. On the lower portion of the hygienic corset buttons can be attached if required, on to which the underclothes (petticoats, drawers) and the stocking suspenders can be fastened. The shoulders and the hips then bear the divided burden of the underclothes. 11. The



Fig. 428b. Platen's Hygienic Corset
or Binder-Belt.
(Posterior view.)

Fig. 428b. Platen's Hygienic Corset or Binder-Belt. (Posterior view.)

hygienic corset invented by the author in so far satisfies the requirements of fashion, that, in spite of all considerations of the laws of health, it still preserves the form of the waist. 12. The corset is, in all its parts, made of lasting materials; it is unhindered in its power of holding up the figure after being washed; and, with all these advantages, it combines cheapness.

Menstruation, Absence of; Amenorrhœa.—The absence or omission of menstruation is a consequence of some general disease, except where it is prevented by some mechanical hindrance, such as the narrowing or closure of the orifice of the womb, a flexion of the body of the womb, etc., unless, of course, pregnancy is its cause. At the age of coming puberty, the regular setting in of menstruation may be hindered or delayed through disturbances of nutrition, or of the formation of the blood, or of disorders of the digestion; through hereditary dyscrasia, through severe children's diseases, or through severe wasting diseases that set in at the time; through scrofulous, tuberculous, rickety conditions; through poverty of the blood, chlorosis, nervousness, morbid irritability, general weakness, etc. Another cause of the failure of the periods to appear may be a tardy development of the ovaries, which then do not allow any ovules to ripen or set any free; also an uncommon lack of sensitiveness in the internal sexual organs; a sedentary mode of life, etc., may also cause the absence of the monthly purification at the time of puberty.

An absence of the period in the case of women or girls who have already menstruated may also arise from many and various causes. When one cannot assume the possibility of pregnancy, and when also the time for the change of life has not yet come, then either some constitutional disease, such as tuberculosis, especially consumption of the lungs, poverty of the blood, etc., or a weakness of the internal sexual organs, which shows itself either by some of the forms of disease described above, or by the whites, must be blamed for the absence of the period. In place of the womb, frequently some other organ takes over the periodical evacuation of blood at the time when the ripe ovule is expelled from the ovary; there then takes place, after the characteristic signs of a congestion of blood have shown themselves in the organ in question, a spontaneous bleeding from it, accompanied also sometimes by a slight

evacuation of bloody mucus from the sexual organs. This substituted menstruation may take place out from the lungs, the stomach, the anus, the nose, or the gums, etc.

With reference to the treatment of failure to menstruate, or the missing of a period, one must carefully guard against the use of so-called stimulating remedies, or emenagogues. When, in the case of girls who have not yet menstruated, no local disease of the sexual organs is shown to be the cause, and no disease of the blood and no fault of constitution, and when no condition of general debility exists, and when no considerable general disturbance of the health is observed, then one should not, under any consideration, have recourse to means for forcing the production of the monthly periods, but allow the girl plenty of exercise, both in the open air and in the house, and especially allow her to perform physical work, taking particular care to guard her against a sedentary mode of life. With regard to the general care of the health, the rules of the General Strengthening Treatment are to be observed, in which hydropathic applications, barefoot walking on wet grass, paddling in water, leg and back shower baths, deserve very particular consideration. Only in cases where symptoms of a congestion in the internal sexual organs show themselves every four weeks, and pains are felt in the back and in the region of the loins, and when there is a discharge of mucus from the sexual parts, and the glands of the breasts show a sensitive tension (and therefore when one has reason to assume that a ripening of an ovule in the ovaries, and its expulsion therefrom, has taken place), and that only the bleeding is absent, only in a case like this is it proper to adopt means for suitably bringing on the flow of blood. In such a case one should, in the intervals between the setting in of these congestive conditions that are taking the place of menstruation, adopt the following applications: Complete washings of the body every morning, at a temperature of from 77° to 82° F.; two or three daily trunk baths at 82° to 86° F., of a duration of from ten to fifteen minutes, with massage of the abdomen, hand-grasp No. 1 and 2, which should be carried out on alternate days; also two or three sitz vapour baths every week, and every night a stimulating pack on the back at from 73° to 77° F., in combination with stimulating leg or calf packs at from 64° to 68° F. Two or three times a week one should apply a thigh and back shower bath, and the girl should every day go through the Cycle of

Movements No. 5, in Active Movements of the Hygienic Gymnastics. When the congestive conditions arise every four weeks, the girl should take foot vapour baths, foot baths at from 90° to 95° F., of ten minutes' duration. ("Alternating Foot Baths," see p. 536.) In case of violent pains in the abdomen, vapour compresses should be applied, changed every five minutes and repeated six to eight times.

In cases of women and girls who have already menstruated, one directs the treatment to the removal of the primary disease.

Menstruation, Sudden Suppression of.—The suppression of the menstrual flow while it is going on, in consequence of which sometimes the next following monthly period does not again set in, is generally the result of catching a sudden cold, through violent emotions (fright, fear, annoyance, rage, etc.), from fever, from acute diseases, especially from eruptive diseases (such as measles, scarlet fever, smallpox, etc.); from catarrhal affections of the womb, etc. The suppression of menstruation requires prompt restorative measures, for otherwise the most serious consequences may arise to the complete organism. In recent cases* take two to three warm sitz baths daily, beginning at 63° F., and rising to 70° to 75° F., and during the bath carefully pour hot water to it; hot foot baths (p. 536), or foot or leg vapour baths two to three per day; also apply abdominal massage, vapour compresses on the abdomen in bed, and bed vapour bath No. 4.

In cases of long standing (see also preceding article) carry out the General Strengthening Treatment, of which body baths or sitz baths (45° to 54° F.), leg and back affusions, foot and leg vapour baths, walking barefoot, etc., are the most important items; also the Gymnastic Treatment Movements No. 5. The passive movements following abdominal massage (Figs. 199 and 205 to 207) are of great value in restoring the functions in irregular menstruation.

Menstruation ceasing before the Correct Time.—The cause of menstruation ceasing too soon, that is, before the age at which it naturally should do so (forty-five to fifty), is either to be looked for in disease of the organs, poorness

* It may happen that (in married women) the menstruation, after a very short duration, suddenly ceases. This, accompanied by nausea and sickness, is a sign of pregnancy. In such cases the above treatment, or any applications to restore the function, must be avoided.

of blood, scrofula, syphilis, etc., or in a previous severe loss of blood, as during confinements or the lying-in period; inherited dyscrasia, or exhaustion of the constitution in consequence of too many or bad confinements; drug poisoning, chronic indigestion, stomach and intestinal catarrh, etc.; or it may be due to menstruation having commenced at an abnormally early age, for the sooner in life menstruation commences, it usually ceases at an earlier age, and may therefore in some instances come to an end at the age of thirty-six to forty. If the change of life has set in too early, there is nothing to be done. The treatment can only obviate the cessation, and should the woman suffer chronically, she may adopt the rules of the General Strengthening Treatment, to improve the quality of her blood and humours. She should do her utmost to treat the cause of her trouble, as well as her constitution, on rational principles.

Menstruation, Excessive; Abnormal Bleeding from the Womb; Menorrhagia. — Concerning most forms of hemorrhage, all that is worth knowing has already been said in dealing with the other diseases of the womb. The excessive and irregular arising of bleeding, the abnormal constitution of the excretive fluid, and the local and general troubles associated therewith, always point to some fundamental disease that must be got rid of if one wishes to effect a cure. There is no bleeding or hemorrhage which ought to be taken lightly, whether it be in the form of an excessively great flow at the regular period, or whether it take the form of a hemorrhage occurring between the times of the regular period. In both cases there are two possibilities — either there already exists some malady in the internal sexual organs which is giving evidence of its presence by the symptom of bleeding, or some malady is beginning to develop. Improperly ordered cold sitz baths may likewise cause an excessive flow of blood at the monthly period, or a flow in the intervening time, if they are applied in such suffering conditions as should, from the first, exclude the use of cold sitz baths. (See on this subject, p. 522.) Weak conditions of the womb, produced by over-irritation of this organ, in consequence of sexual excesses, whether in coition or self-abuse; through miscarriage, or through frequent severe confinements; through congestions of blood to the womb; through obscene representations or thoughts, through excessive dancing, riding, or tight-lacing; through the irritation of worms, or of

strong purgatives; through the secret means for procuring an abortion, etc.; all are indirect causes of an excessive loss of blood. Also a predisposition to hemorrhoids, engorgements of the abdomen, stoppages of the circulation of the blood in the liver, the spleen, or the portal venous system; or a stoppage of the blood in the great veins of the trunk in heart diseases and lung diseases. A general over-fulness of humours or repletion may irritate the sexual sphere, and thereby give rise to excessive menstruation. In the case of very many young girls it is not at all uncommon, when the periods begin prematurely, for excessive bleeding to take place, which then weakens the undeveloped body to the greatest possible extent. Also, in the so-called period of the change of life, one often observes uncommonly excessive periods, either a too-abundant setting in of a regular period, or in an interval between two periods. The treatment of an excessive bleeding from the female sexual organs must, in the first place, be directed to the removal of the primary disease. When, in case of a sudden, extensive, and lasting loss of blood, there appear to be indications of a violent hemorrhage, or of bleeding to death, such as a high degree of weakness, fainting, palpitation of the heart, dull, small, and hardly perceptible pulse, coldness and pallor of the skin, etc., set in, the patient must observe bodily and mental rest, lying on her back in a horizontal position, and cold, stimulating compresses, at from 68° to 70° F., must be applied to the lower abdominal region continuously, as well as stimulating packs to the lower part of the arm, the wrist, the calves and the feet, at from 59° to 63° F., in alternation with foot and hand vapour baths, or hot foot baths and hot hand baths. Also, massage of the abdomen with Credé's hand-grasp should be applied (see p. 698); and finally, when the patient is able to leave her bed, Kneipp's knee shower bath, in order, by its application, to cause by reflex action a contraction of the blood vessels of the womb.

Menstruation, Painful.—Women very often are the victims of very severe local and other pains just before menstruation sets in and while it lasts. These arise partly from the nervous system and partly from congestion, especially in the sexual region. The local symptoms, that first appear and disappear during the period, or else continue till the end, are dull, sick, or colic pains in the abdomen, in the back and loins, and extending to the thighs. The general

symptoms, which vary according to the individual constitution, are very varied, such as congestion in the head and chest, palpitation, feverish excitement, restlessness, cramp of various sorts and in different regions (stomach and chest), head and faceache, stuffiness in the head, constipation or the reverse, sickness, pain in the bowels, etc. Nervous people are often very upset; tearfulness, sadness, and great irritability are the order of the day. These emotional troubles generally last till the second day, and then disappear, but sometimes they last out the period. Many retire to bed for the first days. Sufferers from pressure of the blood to the different organs, causing morbidness, palpitations, heated red face, shivering and shaking, flushing all over, head and toothache, etc., are relieved when the blood begins to flow steadily and pressure is lessened. Not only do females of a full habit suffer from these congestions, but also weakly, evidently anæmic constitutions, are equal victims; in their case the cause lies exclusively in hyperæmia of the internal sexual organisation.

Menstruation troubles arise, I repeat, from general nervousness, hysteria, or irritation of the nerves of the womb, and partly from a falling or change in the womb; from defective formation or any injury, inborn contraction of the neck, from polypus, swellings in the womb, or diseases of the ovary.

The treatment must aim at the relief of the exciting cause. Mitigation of the pains can be obtained by laying vapour compresses on the abdomen, alternately with partially wrung out compresses, and in taking sitz vapour baths, Kneipp's vapour baths, etc.

The Proper Mode of Life for a Woman during Menstruation.—The fact that unsuitable habits at these periods may cause not only local or general troubles of every degree, but also disease of the organs in the pelvis, and of the nervous system, obliges a woman to follow certain hygienic rules. The want of cleanliness of many women is very wrong indeed, for they take no precautions to protect their linen and bedding from the discharge of blood. As not only their clothing, but many parts of the body are smeared with blood, which dries on them, a condition of great uncleanness exists, not unfrequently causing disturbance to the health. Nor should way be given to the absurd idea that no clean linen is to be put on during this time. Nothing justifies

it. Some women gird themselves with old linen, towels, sheets, but these are merely a makeshift, for these large, clumsy bandages interfere with the ordinary dress, and hurt the body by pressure and friction. Wearing a T-binder is better, but it also may do harm, as it is generally adjusted too tightly, and the blood penetrates it, and soaks the surroundings. The linen napkin is drenched too quickly. If there are not changes at hand, she is forced to wear the same one throughout, which is painful and disgusting. These napkins are also very often badly washed, and they have to be changed very frequently, and to prevent all this trouble sanitary towels have been invented. They are variously constructed, and must, to be efficacious, fulfil the following requirements: They should fit and set comfortably, be light, elastic and soft; should not press nor rub; feel dry, and easy to change, and, above all, be absorbent. The absorbent



Fig. 429. Belt for Sanitary Towels.

part should take in the greatest possible amount, but not let any drain through, and, however fully charged, be antiseptic and free from smell. Fig. 429 represents such an appliance. It is so simple as to need no description.

The filling of the pad is either cotton wool or moss. The towel should be changed once or twice a-day, as required. The bandage can be used after confinement, as well as in cases of slimy, suppurated, or bloody discharge, when they are most highly commended.

· Injections should be discontinued during the period, but ablution of all the lower parts of the body may be safely and successfully carried on, in water 86° to 90° F. But using an appliance and keeping oneself clean is not everything. A general and judicious moderation is a woman's great duty at this time. Violent bodily motions, such as dancing, running, jumping, riding, long walks, working a sewing machine, must be strictly avoided. Wearing tight clothing and corset, injurious at any time, is much more so now. Cold, especially of the feet and abdomen; excess in eating, sitting up at night, emotion (anxiety, fright, anger, etc.), must be, as far as possible, avoided, as suppression of the menses is a probable consequence of any of them.

Nipples, Depressed, may be restored to their original development in the following way: Take a slender, largish wine bottle, with a flat edge to the neck, fill it with hot

water, and tilt it sharply, before the water runs out, over the nipple. This will bring it up.

Nipples, Sore.—However important the care of the breast is, to prepare and preserve it properly for its natural function, suckling, the period of pregnancy requires very particular attention, in order to avoid any possible trouble that would disturb this function, render it painful, and even impossible. Any pain or sore of the nipple may retard suckling. Young wives expecting their first child must, during the latter half of their pregnancy, harden the tender, thin-skinned nipple, and this is best done by first washing and bathing the breast in water 68° to 72° F., then dipping the nipple only into water 64° to 69° F., and rubbing it gently. If the nipple is much depressed, a consequence of wearing a corset, it must be drawn up by the hand or by a suction glass. If during the confinement the patient suffers from sore nipples, she must cover them with linen rags soaked in water at 77° to 81° F., and lay over them thick, dripping compresses of the same temperature (p. 511). She should also wet the breast gently many times a day, and it is beneficial to apply a little oil of almonds, and then cover with the wadding. For the rest, follow the instructions given in the preceding article for local treatment, as well as those laid down for the General Abducting Treatment.

Ovaries, Inflammation of the, Acute.—The ovaries, like the womb, are subject to diseases and disorders, and these are very common occurrences in a woman's life. Inflammation of the ovaries is not always easy to diagnose, as, on the one hand, some of the local symptoms are often absent, and, on the other, those that do present themselves may indicate disease of the womb or changes in the organisation.

Acute inflammation of the ovary is generally the effect of a confinement, and is a very unwelcome complication of a lying-in. It may, however, come on at the period of menstruation, when the ovary is surcharged with blood, if untoward, external circumstances affect it, as cold, especially in the feet and abdomen, or connection during menstruation. One ovary only is attacked, as a rule, and that the one in which the congestion causing the current menstruation exists. It would be too long a task to describe all the pathological phases in the ovaries and its follicles, occasioned by the inflammation. I must confine myself to the symptoms

of inflammation. They are not in any way peculiar, and merely indicate a local limited affection of the adjacent membranes. But one may assume its presence, if, during menstruation, the hemorrhage suddenly stops, probably owing to cold, and pain sets up in the region of the ovaries. The inflammation, very seldom accompanied by fever, may pass over in a few days, or extend to the nearest organs, and occasion slimy or serous discharge from the womb, digestive disorders, bowel complaints, or nervous affections.

The treatment is the same as for "Womb, Inflammation of the."

Ovaries, Inflammation of the, Chronic, is the result of a neglectful or mistaken treatment of an acute case. The peritoneum near the ovaries is drawn into sympathy, it either thickens, or is overgrown by other formations, and the symptoms described in the preceding article, indicating an inflamed, acute condition, recur at longer or shorter intervals, especially at the monthly periods, and are hardly felt in the intervals.

The treatment is the same as in "Womb, Inflammation of the, Chronic."

Ovary, Tumours in the; Cysts; Dropsy of the Ovary.

—As a rule, a cyst is formed by an injured Graafian follicle, when, after previous inflammation, it discharges a great amount of serous matter. The matter cannot be reabsorbed, owing to the thickening of the walls of the follicles. The cysts, which seldom form before maturity, generally between the ages of twenty to forty-five, now appear either singly or in numbers—in one or both of the ovaries. The swellings vary, from the size of a pea to that of a child's head, and give the patient the appearance of pregnancy. The contents of the cyst are thick, yellowish, or bile-like serous matter. Others contain, instead of fluid matter, fat, even hair, tooth-sockets and parts of teeth, separate teeth, bits of bone, nerve and brain matter, which point to an embryo life. Thus there is a distinction between fluid and solid cysts.

Cyst formation is called dropsy of the ovaries. An ovarian swelling is generally painless, movable and soft, and is unlike a swelling in the womb, which is hard and immovable. According to their number, size, position and contents, and the individual constitution of the patient, they may occasion a complication of disorders. Like the swellings at the commencement of pregnancy, at the beginning of their growth these tumours occasion great disturbance to the general

health, sickness being one of the principal symptoms. With their growth and extension outwards the troubles diminish. But the patient is not free from other symptoms, and these are painful evacuations, troubles of the bowels, pains in the loins, pain or numbness in either leg, swelling of the nearest veins, oppression on the chest, catarrhal affections of the intestinal canal, and pleurisy; finally, in defective nutrition, as poverty of blood, attenuation, dropsy, etc. The tumours do not grow regularly, but with temporary interruptions. Life is endangered only after many years. Many cysts maintain a medium size for life without presenting any danger. A recurrence hardly ever occurs. Minor tumours do not prevent pregnancy, but a full-time birth never ensues—a miscarriage or premature confinement intervenes.

There is danger to life when the cyst bursts, and its contents are discharged into the abdominal cavity, or if the bladder or rectum is penetrated, and the contents of the cyst are discharged by means of these organs. There is then inflammation of the peritoneum, accompanied by violent pain and high fever.

The treatment of tumours in the ovaries should begin with a carefully carried out General Strengthening Treatment, while the instructions given under "Womb, Catarrh of the, Chronic," are often very effectual. At a further stage the treatment should become strictly passive. Massage of the uterus is to be applied to very small swellings only, larger ones are liable to burst. For this reason rubbing the stomach must be strictly avoided. To set up discharge of the swelling by drawing away the matter is the sole aim of the treatment, and Dr. Schroth's system seems perfect for the purpose.

Sexual Organs, Female; Diseases of the External, are of many kinds, and though not precisely dangerous, cause some of the most painful and wearisome sufferings of women. The private parts may be wholly or partially inflamed, acutely or chronically affecting the mucous membrane or outer skin. The inflammation may penetrate to the tissues, with other symptoms, swellings and hardenings, heat, dryness and redness of the outer part, and pains making themselves felt in moving about, motions of the thighs, and passing urine. Not only may the mucous and sebaceous glands of the inner surface be inflamed, but swellings may ensue, abscesses, swellings in the veins, also skin eruptions, eczema, salt rheum, etc., and unbearable irritation. A description of all these matters

would fill a book by itself, and I must refrain from details, and recommend my lady-readers to follow, in case of need, the instructions given for the treatment of Women's Diseases, pp. 1472 et seq., and to apply the measures either locally or generally, as may be necessary. More details are given under "Veins, Varicose," "Swellings (Tumours)," "Abscess," "Inflammation," "Eczema," and in other articles which bear on sexual matters.

Vagina, Catarrh of the, Acute.—Inflammation of the mucous membrane of the vagina, a catarrhal affection of the same, may be acute or chronic. Acute catarrh is the rarer form, and is accompanied by burning pain and itching in the sexual parts—but freedom from urinary troubles. The part is hot and dry, the membrane inflamed, swollen, and apparently spongy. At first, clear, transparent, slimy matter is discharged in small quantities, but later this becomes opaque, thick, and more copious. If menstruation occurs during the catarrh, it will be increased and painful. The catarrh generally lasts two or three weeks. If not relieved, it becomes chronic.

The treatment is the same as in "Womb, Catarrh of the, Acute."

Vagina, Catarrh of the, Chronic; White Discharge.—Chronic catarrh arises from neglect or mistaken treatment of an acute case, or it may be independent, and is then the result of constitutional sickness, or of an external weakening cause, as (in the former case) anæmia, lead poisoning, scrofula, syphilis, etc.; in the latter, defective or deficient food, unhealthy dwellings, bedding and clothing; insufficient care of the skin, bad air, sedentary habits, lingering weakness after frequent or severe feverish disorders, etc. But want of cleanliness in the way of ablution after menstruation, local inflammation of the membrane through excessive indulgence or self-pollution, may bring on chronic catarrh. The inflammation is generally slight, but still the peculiar characteristic, white discharge, sometimes arises. On examination, the membrane is limp, soft, granulated and purple. The discharge is yellowish or milky, constant but sluggish. The difference between this inflammation and that of the womb has already been pointed out, but I may add that a prolonged case of the latter often turns into the one now described. The catarrh of the womb is recognisable by a slimy, alkaline secretion, intermingled with bile-like particles. The local symptoms of catarrh of the vagina and white discharge are as follows: A

sensation of fulness and heaviness in the abdomen, occasional oppression and tightness in the back, a drawing to the front parts, and a total obstruction or excess of menstruation. The flow of the blood is considerably reduced, and is preceded by violent pain. General symptoms are flatulence, acidity, nausea, sickness, constipation, cold hands and feet, rush of blood to the head and chest, tearfulness, irritability, etc.

The treatment is the same as for "Womb, Catarrh of the, Chronic." The cause and alleviation of the same must be the first point. Follow the rules of the General Strengthening Treatment, and do not omit, when using the injections, to do so liberally.

Vagina, Cramp of the, belongs to the long list of female complaints, painful and wearisome. This cramp attacks women in the upper classes, especially those whose minds are actively engaged. It arises partly from a generally nervous condition, set up by disturbances in the supply of nutriment, or by constitutional illness; partly from diseases of the womb and ovaries, as chronic inflammation, growths on the membranes and swellings of the same, falling or shifting of the womb, etc. Irritation of the vagina by wearing rings or other instruments, through worms, secret practices, irritation of the vagina by sharp, festering discharge from the internal sexual organs, are often the exciting cause of vaginismus.

The cramp is a contraction of the muscular fibres, which causes a painful constriction. It extends to the neighbouring organs, the bladder, the alimentary canal and the womb. It is brought on by emotional passion, physical concussion, by pushing, falling, pressure, etc., and by conjugal connection, which is extremely painful and becomes almost impossible.

The treatment must be directed to the exciting cause of the trouble. It is, on the whole, the same as in "Womb, Catarrh of the, Chronic." Relieving remedies consist of warm sitz baths, vapour sitz baths, chair vapour baths and vapour compresses.

Vagina, Inflammation of the, Acute. — The female is subject not only to inflammation of the membrane already described in the two preceding articles, but also of the tissue, its substance, and the partition wall which is lined by the membrane. Acute inflammation is marked by the following symptoms, local and general: At the commencement there is fulness, heaviness, tightness, drawing, boring and tickling in the pelvis—these sensations become violent, pains extending

to the back, the loins, then the groin and thighs. There is also a most painful flow of urine, constipation ensues, and the evacuations are hard, burning masses. The external sexual organs are swollen, the abdomen is very sensitive to pressure. The vagina is hot, and, if touched, extremely painful. Fever is always present. Menstruation due during the inflammation does not set in. Causes of acute inflammation are injuries caused by violent or artificial movement of the bowels, self-pollution, excessive indulgence or violence, foreign substances getting into the part affected and becoming imbedded there, chills, pressure of blood in the abdominal region, violent friction in riding, suppressed white discharge, poisonous infection, etc. The inflammation is apt to result in abscesses and fistula if neglected. A red discharge is often observable, and this may prove the beginning of dropsy.

The treatment is the same as for "Womb, Inflammation of the, Acute." It is advisable to follow directions in article entitled "Women's Diseases, General Instructions for the Treatment of."

Vagina, Inflammation of the, Chronic.—The symptoms enumerated in the preceding article are all to be expected in chronic inflammation. They appear slowly and gradually, with indescribable pain; in many instances discharge of slimy matter, abscesses and fistula, even prolapse.

The treatment is the same as for "Womb, Inflammation of the, Chronic."

Vagina, Polypus in the, is set up by neglected chronic inflammation of the mucous membrane. They are formations caused by a defective mixture of the blood and humours of a scrofulous, tuberculous, and syphilitic nature. Great irritation will produce polypus, which, in its turn, has been occasioned by the corroding properties of accumulations of sexual secretions. They are pear-shaped, fibrous or fungous, and as long as they are small occasion very little pain, but larger ones may bring about a prolapse, cause dull, piercing, and drawing pains in the pelvis, and give rise to trouble by bloody, serous, and slimy discharge.

The treatment must go direct to the cause. Begin with the General Strengthening Treatment, and then go on to a severe abstaining treatment. The drawing off of the fluids by reabsorption is the chief object in view.

Vaginal Prolapse.—Although a complete falling of the womb is (as demonstrated in pp. 1519 to 1525) accompanied

Plate VIII.*

Fig. 1. Retroflexion of the womb in the fourth month of pregnancy.

- | | |
|-----------------------|--------------|
| a. Bladder. | e. Perinæum. |
| b. Prepuce. | f. Rectum. |
| c. Vagina. | g. Spine. |
| d. Womb and contents. | |
-

Fig. 2. Ante-flexion of the womb.

- | | |
|-------------|------------|
| a. Womb. | d. Vagina. |
| b. Bladder. | e. Rectum. |
| c. Prepuce. | f. Spine. |
-

Fig. 3. Ante-flexion of the womb immediately after accouchement.

- | | |
|-------------|------------|
| a. Womb. | d. Vagina. |
| b. Prepuce. | e. Rectum. |
| c. Bladder. | f. Spine. |
-

Fig. 4. Polypus in the womb.

- | | |
|----------------------------------|-------------------------------|
| a. Fibrous polypus. | d. Thickening of the walls of |
| b. Polypus of the mouth of womb. | the womb. |
| c. Vagina. | |

* Full explanations will be found on pp. 1509 to 1514 and pp. 1529 to 1532, under "Diseases of Women."

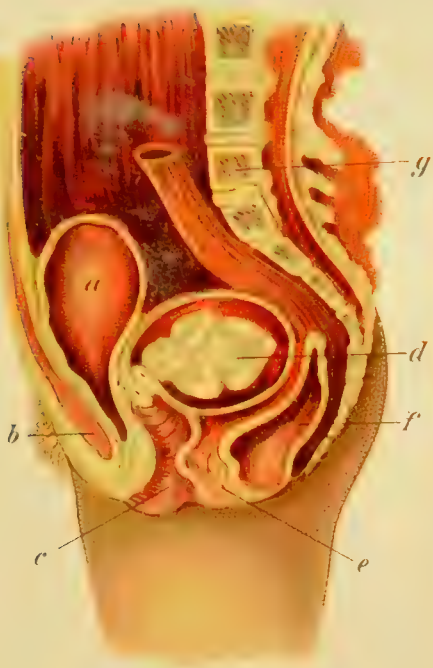


Fig. 1.



Fig. 2.

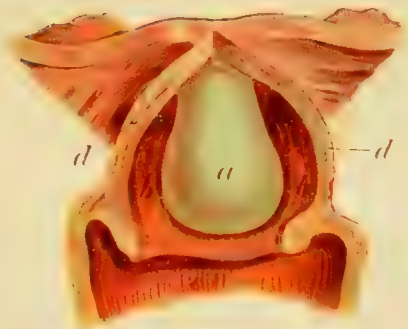


Fig. 4.

by a prolapse of the vagina, the latter may occur independently. The limp vaginal walls sink partly, especially the front part, into the vaginal entrance, and sometimes project beyond the external lips. But if all the walls of the vagina come down at once, falling of the womb is the result. Sometimes a partial prolapse looks like an extended and considerable swelling, causing its owner a good deal of pain, since ablutions, air, discharges from the sexual organs, all continually irritate and inflame it. Walking becomes most painful. Again, in some instances only a small part of the membrane sinks, and is hardly noticed. If the mischief is prolonged, discharge, abscess, swellings and callosities set up, and the bladder and alimentary canal may be affected. In a partial prolapse, the vagina looks like a bag, and the mouth of the womb may be felt by the finger in front of or behind it. A complete prolapse is a thick, puffy, round swelling, with a depression in the centre, behind which the mouth of the womb is to be found. The causes of this disorder are frequent and severe confinements, tearing of the middle coat of the vagina at these times, getting about too soon, white discharge, sexual excesses, injection of medicaments, continual use of mechanical appliances, rings, etc. If there is a tendency this way, the specific moment has only to come to bring it on (such as violent shaking of the body, by jumping, coughing, sneezing, etc.), with stress and pressure at stool, etc.

The treatment is the same as for falling of the womb.

Womb, Bending of the; Uterine Flexion.—The non-pregnant womb may show a bending either forwards or backwards, or sideways, or half-sideways and half-backwards. It may be displaced from its normal form as well as from its normal position. Irregularities in the form of the womb are called uterine flexions and bendings, and among these flexions there are distinguished the bow-shaped, the angular bendings or flexions. In its normal condition the womb is held by the round and broad ligaments of the womb, by the peritoneum and by the bladder that lays in front of it, and the rectum that lies behind it, as well as by the layers of cellular tissue which lie between them in such a position that its axis forms a slightly bowed line through the middle of the cavity of the neck of the womb and of the vagina. The hollow circumference of the curve of the axis then lies towards the front, so that the neck of the womb stands in the vault of the vagina slightly at the back.

When the womb is bent so that its axis turns out in a strongly elevated curve backwards, causing the fundus to be turned forward away over the bladder, then this is called a flexion in a forward direction. This kind of flexion occurs most frequently in women who have not yet had any children, or, in the case of virgins, especially those who suffer from chlorosis, etc. If, on the other hand, the fundus of the womb is bent backwards, so that it lies over the rectum, as shown in Fig. 430, and as is also shown in this illustration, even bends backwards over the vaginal portion of the neck of the womb when, that is to say, it forms a high unnatural

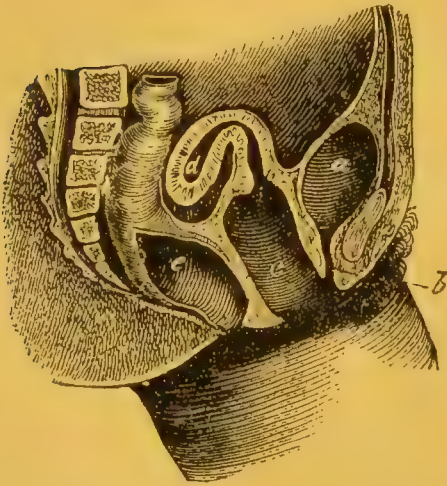


Fig. 430. A Flexion of the Womb Backwards.

a. The bladder. b. The urethra. c. The vagina.
d. The fundus of the womb. e. The rectum.

curve forwards, then this is called a backward flexion. This form of flexion is most common among women who have already had children. The causes of the bendings or flexions are almost always to be sought in relaxed conditions of the womb and its ligaments, especially in the laxity of tissue of these organs; the real flexion is almost always in the so-called inner orifice at the place where the neck—which is firmer than the body of the womb—is joined with the neighbouring organs. The movable body rests on the neck of the womb in the

same way as a fruit does on the stiff stalk, and, in consequence of its own weight and its inclination too far backwards or forwards, it snaps short under the neck. The indirect causes of a forward flexion are, as a rule, chronic catarrh of the womb, congenital or acquired shortening of the ligaments, new growths in the internal or external walls of the womb, etc. The indirect causes of a flexion backwards are, as a rule, miscarriage, carelessness in regard to health after a confinement or during a confinement, too many pregnancies following too closely one after another, marriage at too early an age, operative interference during parturition, etc. The local symptoms of a lasting flexion are

characterised by congestions of blood in the abdominal organs, catarrhal affections of the mucous membrane which lines the generative tract, leucorrhœa through ulceration of the mucous membrane, irregularities of menstruation in the form of unequal and irregular appearances and diminished durations of the periods, as well as of diminished loss of blood during them, alternating with exhausting and very abundant flows; by colic of the womb during menstruation, and, in the intervals, by pains in the back and hips, especially at the time of menstruation, etc. The general symptoms show abnormalities of the digestion and nutrition, constipation, difficulty in passing water, as well as, as a rule, the multifarious and varied picture of hysteria. Barrenness is in general a consequence of flexion of the womb. Left to itself, a flexion may easily bring about chronic wasting. It is very rarely indeed that the womb resumes its normal condition naturally and without assistance.

The change in the form of womb described above (flexion) is to be distinguished from displacement of the womb in a diagonal direction. In consequence of its functions and the demands made upon it, the womb is, in spite of its ligaments, and in spite of the attachment to the neighbouring organs and structures, nevertheless a very movable organ, and the causes which have been enumerated as capable of producing a flexion may also, instead of this, produce a displacement. This is mostly in a forward direction, backwards or downwards, sometimes, however, but more rarely, sideways either right or left, or upwards. In cases of displacement, the womb takes a different position without altering the normal direction of its axis, and indeed, when there is no falling, it assumes mostly a straight direction.

In cases of an oblique displacement of the womb in a forward direction, the bladder is very much narrowed by the pressure, in consequence of which an incessant inclination to pass water arises, without an evacuation of urine taking place; irritation of the rectum, caused by the neck of the womb, produces a constant feeling of need for evacuation of the bowels. Constipation of the bowels; violent pains in the abdomen, especially at the time of menstruation; stomach troubles, cramp conditions of various kinds, hysterical symptoms, etc., complete the entire picture of disease of displacement of the womb in a forward direction.

A deviation of the uterus in a backward direction is of more rare occurrence than a flexion forwards, and then almost always takes place only in women who have already had children. The causes of the backward inclination are of a very varied kind. They generally originate in previous inflammations, as, for instance, after or during a confinement, etc. The general symptoms have a great similarity with those produced by displacement in a forward direction. Characteristic are violent pains in the back, which increase when there is constipation of the bowels; or by the carrying of heavy weights, or when there is pressure from a corset, etc.

With strict observance of the rules of the General Strengthening or Tonic Treatment, one should adopt in general the treatment I have prescribed under "Womb, Catarrh of the, Chronic." Only, in regard to what I have said as to syringing out of the vagina, I must add that the water used must only (at the beginning of the treatment) be at a temperature of from 82° to 86° F., and in the course of the treatment must be reduced in temperature from 68° to 77° F. (See on this subject, p. 568.) Massage of the pelvis, according to Thure Brandt, is of great use in cases of flexion and curvatures of the womb. In order to convince my honoured lady readers of the excellence of this method of treatment, I will allow Dr. Freudenberg to speak. He is not only a famous and experienced gynæcologist, as already mentioned on p. 690, and a pupil of Thure Brandt, but he is also especially competent to form an opinion on account of his many years of practice exclusively devoted to gynæcological massage. Dr. Freudenberg writes as follows:

"The old makeshift treatment, for such I may call it, since cure was very seldom attained (the insertion of rings and levers into the vagina), we followers of Brandt abandon altogether, or at most we only very rarely make a temporary use of this means of support. The reasons for this condemnatory opinion are obvious enough. The best and most perfect-fitting ring, and such like, the best formed and the most cleanly-kept pessary or lever, always place their wearers in danger of inflammation and infection through the pressure and almost unavoidable uncleanness of the ring. Such an instrument must, however, always exercise pressure if it is to serve its purpose at all, that is to say, to hold the womb in a particular position, or to press it back into the position aimed at by the physician. With this pressure is combined the further evil, that it distends

the vagina and the ligaments of the womb, and thereby causes the relaxation, thus actually increasing the primary evil from which the malady started. So long as a well-formed pessary lies in position, it holds the womb in the correct way; as soon, however, as it is removed, the womb sinks back into its old crooked position, indeed, even into a worse one; finally, the pessary used at first is no longer sufficient, and recourse has to be had to ever larger and larger instruments, in proportion as the parts in question become more stretched or distended, and all this without getting any further towards real cure. I am not painting too black a picture. If one leaves out of consideration certain new cases, in which the ring probably acted as a stimulating influence, through being a firm foreign body (massage by means of an instrument), one has very seldom seen satisfactory results in advanced cases through the use of pessaries. It was indeed just this complete breakdown in our treatment formerly in use that really drove me to seek out Brandt in Stockholm. Very rightly Brandt laughed at the generally only apparent satisfactory results obtained by the use of rings, since he compared a womb forcibly held in its place by a lever to a paralyzed arm, bound up by a doctor in splints. As a matter of fact, this comparison just hits the right nail on the head. It is not the crooked position which is the disease, but the weakness of the womb and of the ligaments that should hold it in place, and it is from this weakness that the irregular position really arises. The physician that wishes to proceed rationally, however, should consider it his business to attain a true cure. The womb must not only be again placed in its proper position, but must be given its former elasticity, as must also the ligaments attached to it, so that it is once more able to permanently retain this normal position. This end can, however, only be obtained by massage.

“To express myself as shortly as possible, the commencement of the treatment must consist of the removal of growings together, cord-like formations, shortenings of the ligaments, etc., when such conditions are present. Then, at first, the womb must be lightly and gently led back to its proper position and place, the angular stiff neck must be rendered pliable by massage, or the long-drawn neck shortened, or the relaxed strengthened. The ligaments and the folds of the peritoneum which hold the womb in its freely movable position must be stretched where this is requisite, and

strengthened and revived in their muscular elements, and strengthened where they are relaxed. For better attaining this end, Brandt has invented a hand-grasp, which is carried out by two persons, and which I have already described.*

"The doctor sets the womb up, and holds the neck of the womb fixed back, laying his finger on the front side of it. A female assistant, however, raises the body of the womb out of the abdominal wall with the tip of her finger, raising it higher until a certain degree of tension is obtained and the doctor cries "stop." When, however, it is released, the elastic womb springs forward. These raisings of the womb serve their purpose admirably in cases of backward displacement. When the inclination is forward, other "hand-grasps," carried out by the doctor alone, are necessary, such as in the case of backward displacement, and always close the process.

"In connection with this short presentment of the mode of treatment of displacement of the womb according to Brandt, it should also be mentioned that, except in a very few extreme cases, cure of leanings and bendings of the womb invariably follows massage treatment carried out with patience and endurance."

Womb, Catarrh of the, Acute, like all inflammatory conditions which attack the womb, is divided into acute and chronic. While, however, the acute inflammations of this organ, in spite of the severe attacks they make upon the affected tissue of the womb, show from the very beginning a tendency to recovery, the chronic forms exhibit a very high degree of obstinacy, and, as a rule, require a great length of time for their cure. I lay special stress upon this circumstance, in order to induce my honoured lady readers immediately to crush in the bud any acute symptoms that may come under their observation, by the immediate application of suitable treatment, rather than carelessly to let them go on and thereby take on a chronic form, in the belief that the apparently small troubles will disappear of themselves.

Acute catarrh of the womb arises as a consequence of the most varied causes, these are: External or internal irritating influences of the most varied kind, as, for instance, catching cold during the menstrual period, shakes through a high jump or fall, through pressure or a blow on the lower

* Compare with the upper part of p. 694, where this hand-grasp is described in Dr. Freudenberg's own words.

abdominal region, through hurried stooping, through reaching up too high, through too violent or too frequent coition, self-abuse, obstinate constipation, etc. Direct infection with gonorrhœal poison, through intercourse with a man suffering with gonorrhœa, may also lead to an acute disease of the mucous membrane that lines the cavity of the womb, and a catarrhal affection of it. The symptoms which characterise acute catarrh generally consist of a swelling of the mucous membrane of the womb, which secretes a clear, milky, thready, sticky, and gradually purulent and opaque mucus, which leaves behind at first grey, and then yellow spots, upon the linen; the vaginal portion of the womb at the same time becomes swollen and of a dark red colour, allowing the exudation of the mucus to be readily recognised. This secretion from the womb has an alkaline reaction, and thereby forms a diagnostic difference distinguishing it from a secretion that has its origin in the vagina, which has an acid reaction.*

The patients in the case of acute catarrh experience a feeling of warmth and fulness in the abdomen, and suffer from painful drawing pains in the iliac region and in the loins, also, as a rule, they suffer from constipation and difficulty in passing water. The duration of acute catarrh is, as a rule, two or three weeks.

The pains and other troubles then gradually diminish, likewise the fever, when this is also present, gradually diminishes in intensity; the discharge becomes less in quantity and more fluid in consistency, and then disappears altogether. If, on the other hand, cure does not follow—perhaps in consequence of the access of new favouring causes, such as catching cold, excitation, and many others—then acute catarrh becomes chronic, such as that described in the next article.

The treatment of acute catarrh of the womb requires, in the first place, bodily rest, and non-stimulating (chiefly vegetarian) diet. Further, three trunk baths at from 82° to 86° F. should be given daily, of a duration of from ten to fifteen minutes, or two or three sitz baths at from 86° to 90° F. of the same duration, with, during the bath, the introduction of the vaginal

* For the examination of this mucous secretion from the feminine sexual organs use is made of red and blue litmus paper. Where the secretion exercises an alkaline reaction, the red litmus paper becomes blue; where it exercises an acid reaction, the blue litmus paper becomes red.

bath mirror, or speculum. (See under this head.*) Laxative enemata at from 78° to 82° F., in combination with subsequent small cold ones. In order to counteract the pains, one should make use of vapour compresses, with the addition of Kneipp's hay flower fomentations on the abdomen, during the intervals; by day as well as during the night, stimulating, only slightly wrung out, packs on the iliac region, at 76° to 82° F., should be applied, according to the degree of inflammation, in combination with extra compresses on the abdomen from the navel downwards. When the bodily temperature is raised, there should be added to these applications stimulating packs on the legs or calves, or vapour bath No. 4. Further, frequent washings-out of the vagina at from 86° to 90° F. are indicated. At the same time, every week, one or two reclining vapour baths Nos. 1, 2 or 3, or Kuhne's cane-chair vapour baths, or other mild complete vapour baths. When high fever is present, choice should be made of one of the suitable fever treatments described in II., Sec. VI., with special attention to the above-described rules of treatment.

Womb, Catarrh of the, Chronic; Leucorrhœa.—Chronic catarrh of the womb (leucorrhœa or the whites) is among the most tormenting and obstinate diseases peculiar to women. It may arise from a neglected case of acute catarrh, or—and this is very frequently the case—without any preliminary acute catarrh, arise of itself. The characteristic symptoms are, that the discharge comes exclusively from the mucous membrane of the cavity of the womb, and consists of the periodical excretion of glassy clots of mucus, which leave stiff, grey spots on the linen. The appearance of the subsequent uninterrupted flow is in general milky white, or sometimes somewhat more yellowish, according as the mucous membrane of the vagina is more or less affected. Thus it is also uncertain, if the discharge is chiefly one that leaves stiff, yellow-coloured spots upon the linen, whether the mucous membrane of the vagina be the chief site of the catarrh.

Moreover, when the discharge readily irritates and inflames the inner side of the thighs, then one may generally assume that a catarrhal affection of the mucous membrane and the vagina is to a great extent, or entirely, the cause of

* Only women whose hymen no longer hinders its introduction may use the speculum. Virgins are advised to make very frequent injections at from 86° to 90° F., with a very carefully introduced irrigator, or enema with a vaginal tube.

the trouble, since the secretion from the womb is habitually of a much milder composition, the amount of the discharge in chronic catarrh varies very much. If there be a very abundant flow, then it inflames, as has been already said, not only the inner sides of the thighs, but also the external sexual organs, and produces there a troublesome burning and itching. It very often happens that, in the inner orifice of the womb (Fig. 425, 8), plugs of glassy, thick mucus are formed, which hinder the discharge, and force it to be retained in the upper cavity of the womb (Fig. 425, 9). As a consequence this becomes filled with the secretion, and is thereby irritated to a painful contraction, which is called colic of the womb. By reason of these painful contractions, large masses of the accumulated mucus are expelled into the vagina and out through it. The upper surface of the cavity of the womb is also morbidly altered during the continuance of a chronic catarrh. It becomes swollen, brownish red, or slate grey in colour, and there are formed upon it, especially in the neck of the womb and in the neighbourhood of the external orifice of the womb, polypus-like proliferations and ulcers, the latter in the form of small vesicles, about the size of millet seeds or peas, filled with a bright fluid, nodules and pustules. When the catarrh has lasted for a long time, these latter symptoms are seldom absent.

Further consequence of chronic catarrh, or leucorrhœa, is irregular menstruation. It is generally accompanied at its setting in by more or less violent pains, and other general troubles; the loss of blood is at the same time either too great or too small, or, in consequence of the setting in of the troubles, it is wanting altogether. The fluid secretion from the mucous membrane of the chronically inflamed womb in very many cases injures the capacity for life of the ovules that proceed through the Fallopian tubes into the cavity of the womb, and often prevent their further development when in the impregnated condition, so that, in consequence of this condition, many women become barren who would otherwise not be hindered in any way from becoming pregnant. In addition to these local symptoms there arise subsequent general symptoms—disturbances of the digestion, depression of spirits, excessive irritability, delusions, convulsive conditions of many kinds, etc., as well as a large number of troubles which exhibit the symptoms of poverty of the blood, chlorosis, or especially of hysteria. (Compare all these diseases.)

The causes of independent chronic catarrh of the womb are very many and varied—morbid composition of the fluids of the body, and especially such as rest upon a tuberculous or scrofulous foundation; poverty of the blood, lack of nourishment and proper care, damp dwellings, etc., may produce chronic catarrh, as may also self-abuse or other extravagances in the sphere of sexuality. Displacement or humours of the womb, foreign bodies introduced into the vagina, especially the so-called pessaries or rings for falling of the womb (prolapsus) or other displacement of the womb; neglected treatment of the sexual organs in a confinement or after a miscarriage, etc.

The treatment of chronic catarrh of the womb, in cases where this disease arises from some general malady, must in general, in the first place, be directed to the removal of the primary disease, one must keep away any direct provocative causes of catarrh. The rules of cure for the treatment of acute catarrh of the womb also hold good for the chronic form of the complaint. But to them must be added the rules for the General Strengthening or Tonic Treatment, where this is possible; also daily sun and light and air baths, in combination with subsequent trunk baths at from 82° to 86° F., should take a prominent place in the cure. In cases where sun baths cannot be had, one should in their place take two or three complete vapour baths every week, that is to say, vapour baths for the whole body; daily a three-quarter pack of two or three hours' duration, and daily two trunk baths at from 82° to 86° F., in which married women may introduce the bath speculum. Before all things, one should make use of syringings-out or washings-out of the vagina, at from 82° to 90° F., as well as of laxative enemas, in combination with subsequent small cold enemas. In many cases Kuhne's friction sitz baths, in combination with a strict vegetarian diet, are advisable. At the same time, Kuhne's treatment would exclude in general the application of the other natural curative factors, with the exception of the light and air baths. In cases of colic of the womb, or in order to remove other painful symptoms as quickly as possible, one should apply either vapour compresses, changed every five minutes, perhaps six or eight times, one after the other; or one should make use of the so-called rising sitz bath that begins at 95° F., and the temperature of which is gradually raised by the cautious addition of hot water, until it reaches

a temperature of 106° F. In many cases Thure Brandt's massage of the abdomen (p. 695) is indicated, but this should never be applied until one is convinced of its applicability to the special case in hand, as well as having consulted with an experienced Natural Treatment physician, experienced in gynæcology, as to the method of its application. For the rest, one should follow the general instructions given on p. 1472, for the treatment of women's diseases in general.

Womb, Falling of the; Prolapsus Uteri.—When the womb sinks down into the vagina, then one speaks of a sinking of the womb. When this sinking is so great that the vaginal portion of the neck of the womb projects out through the greater labia pudendi, one speaks of a prolapsus uteri, or a falling forward of the womb. Both processes result from a relaxing of the muscles and neighbouring structures, whose function it is to hold the womb in its normal position. Indirect causes of a sinking or a prolapsus are many and varied, but a chief cause of both maladies in question is getting up too soon after a confinement. Other proceedings, however, such, for instance, as sitting up in bed too soon after giving birth to a child, getting up out of the bed during a confinement, lifting the child, straining and pressing at the evacuation of the bowels, etc., may also produce a sinking of the womb, since, by reason of any unsuitable conduct during this time, the regular and normal recovery of the womb is hindered, and it can easily sink down into the vagina, which has been distended and relaxed in the act of birth. The causes of a sinking or of a prolapse may, however, lie in a generally weakened condition, in chlorosis, poverty of the blood, repeated miscarriages, previous surgical operative interferences during parturition, new growths in the womb, etc. A sinking of the womb generally comes on gradually, more rarely suddenly. The last case is only possible when heavy weights are lifted, or by straining and pressing with the evacuation of hardened masses of excrement, and in similar procedures, which have, as their consequence, a tearing of the ligaments of the womb. The patient feels violent pains in the abdomen, with which are associated convulsions, fainting away, sickness, vomiting, and other general symptoms. When there is a gradual sinking of the womb, the patient experiences the following subjective symptoms: The feeling as if something were pressing against the pudendi; sometimes drawing, sometimes tearing pains in

the back, the groin and the loins. The pains become more violent when standing, walking, coughing, sneezing, or lifting objects, and diminish when the body is in a horizontal position. This condition may last for months, or even years, before the progressive sinking causes an increase of the general symptoms, such as constipation, stomach troubles, difficulty in passing water, colic, sickness, and depression of spirits, etc., to set in. There is often present, in an advanced case of sinking of the womb, a catarrhal affection of the mucous membrane of the generative tract, and a bloody or slimy, and sometimes also an ichorous and irritating discharge. There may also be present disturbances of menstruation, especially such as take the form of a much too great loss of blood. A local examination shows, in general cases of sinking, that the neck of the womb is in the vault of the vagina, while, on the other hand, in a fresh case of prolapse of the womb, the neck of the womb is seen as a roundish swelling of about the size of a walnut, and of a high red colour, between the labia pudendi, that is to say, at the entrance of the vagina. In this condition the womb can be easily stretched back with the fingers, indeed, when the patient herself takes a recumbent attitude, lying straight upon her back, it falls of itself back into the vagina. In the course of a few weeks, however, in case timely and suitable measures have been taken for a permanent reposition of the prolapse, the condition of affairs becomes different. The womb has projected further out through the lips of the vagina, has taken on a blueish-red colour, is partly enclosed by the extroverted vagina, and now increases considerably in circumference, so that the prolapse may sometimes attain the size of a fist. The external orifice of the womb is — since the vagina has been turned as it were inside out — gaping, open, red and inflamed, and covered with a tough mucus; the neck of the womb shows, besides, considerable swelling, a lengthening, if, as sometimes happens, the hindmost portion of the bladder is drawn down with the foremost wall of the vagina, then, when the bladder becomes full of urine, violent troubles of the bladder are produced. The extroverted womb, which, in this position, is exposed to the most varied irritant influences, through friction from the underlinen, through acidity in the urine, or evacuations of the bowels, etc., becomes inflamed, and in case the fluid composition of the body of the patient is in a disturbed

condition, may finally become gangrenous. The disease is an extremely troublesome, wearisome, and, above all things, tormenting one; the treatment required also takes a considerable time, since, as the reader already knows, it has to be directed to the removal of the cause, that is, of the primary disease. This, however, is only accompanied by satisfactory results in cases that are of not too long standing. In the first place, in view of a proper treatment, the rules of the General Strengthening Treatment may be strictly observed in all that refers to diet, and to the general care for hygiene. The patient must maintain a horizontal position on her back in bed for weeks, and even months together, and this, however great may be the call upon her patience and endurance. Three times a day trunk baths must be given, at first at a temperature of from 86° to 90° F., the temperature being gradually lowered during the course of the treatment, down from 82° to 77° F., and when the baths are given the patient must be lifted into the bath and out of it again. In the intervals, both by day and by night, stimulating packs for the back at 77° F. should be given, according to the degree of the inflammation present, in alternation with antiphlogistic packs at from 82° to 84° F. If the patient wears a ring,* this is, at the beginning of the treatment,

* It is universally customary, in the practice of doctors who attend women's diseases, in every case of sinking or falling of the womb, or of displacement of the womb, to put it back into its natural position artificially by the aid of mechanical agents. These mechanical agents consist in the application of womb supports or pessaries. They are also called rings, because the older form of pessary was a ring either round or oval. At the present day, almost exclusive use is made either of oval or octagonal rings, made somewhat smaller in the middle, since the circular or ball-shaped supports exercise an extremely injurious pressure upon the front and back walls of the vagina, which is transmitted also to the rectum and bladder, and gives rise to troubles in evacuation and passing water. On the other hand, the oval or egg-shaped rings, which come to lie with their length across the transverse axis of the pelvis, have the disadvantage that they often get out of their proper position, and press forwards and backwards, therefore a woman who is suffering from displacement or prolapsus must, as soon as any troubles set in, immediately examine to see if the ring has got pushed out of its place.

A woman who wears a ring must daily syringe or wash out the vagina with water at from 86° to 90° F., in order to remove the mucus accumulated in the neighbourhood of the ring. It is best that the patient should, every night, when in bed and before going to sleep, take out the ring, which is generally made of vulcanised

still to be left in the vagina, then, however, often to be taken out for a short time, and finally to be abandoned altogether.

rubber, and leave it over-night in cold water, replacing it in the morning, after she has properly washed out the vagina. Perhaps it may here be advisable to give a few hints as to the proper method of introducing an oval ring, and putting it in its place. The ring, which must exactly correspond to the width of the vagina, is to be introduced after it has been properly oiled with vaseline or olive oil, in the following way, which is set out here for the purpose of self-application by those patients who shrink from assistance in such a matter:

The woman lies down in bed on her back (the buttock region being raised by placing under it a firm cushion), and draws up and spreads her legs so that the knees are bent; then the sunken or fallen womb is pushed back into its normal position by the well-oiled finger. The patient then grasps the ring with thumb and middle finger of her right hand, and with its length directed towards the pelvic axis line. Then, while the fingers of the left hand hold apart the lips of the vagina, the well-oiled fingers of the right hand introduce the ring into the vagina in such a manner that it is, at first slowly, pushed along the back wall of the vagina. When, however, it has arrived in the middle of the vagina, then the middle finger is put through the oval opening of the ring, which then, with the aid of the thumb, is brought into an upright position. When the ring is in its right place its longitudinal diameter lies transversely, that is to say, directly towards the sides, thus the surfaces of the ring are directed, one towards the womb and the other towards the entrance of the vagina. The vault formed by the two hip bones (ischia) then forms a foundation for the ring to rest on, so that the body of the womb rests upon the upper surface of the ring. Before the introduction of the ring the patient should empty the bladder, and also, when possible, the rectum. After the introduction of the ring, the patient should carefully rise from the bed and walk two or three steps up and down the room, to ascertain whether the ring is in its right place, or whether it exercises any pressure.

Although the Natural Curative Treatment entirely condemns and abandons every kind of pessary, since these are, when worn for a length of time, provocative of enlargement of the vagina, and productive of other injurious conditions, of which more will be said at the end of this note (and therefore the wearing of any kind of ring or pessary is very injurious), nevertheless, at the beginning of the treatment according to natural principles, one is in many cases compelled, especially where there is prolapse, to obey necessity rather than one's own inclination, that is to say, to allow the continued wearing of the ring until the womb, through the strengthening of its substance and of the relaxed ligaments, has been placed in a condition to retain its normal condition without the aid of mechanical support. Slighter sinkings, and, before all things, flexions and curvatures, make, as a rule, the wearing of any kind of ring or pessary superfluous, and I therefore advise all women who are suffering from these last-named troubles, and who have been

Reclining vapour baths No. 4 should be frequently given, perhaps one every other day, as well as every night stimulating packs for the calves at from 68° to 72° F. The programme of treatment is completed by washings-out of the vagina, first at the temperature of from 82° to 86° F., later on reduced to a temperature of 68° to 77° F. (see p. 568); laxative enemata at 82° F., in combination with subsequent small cold enemata at 68° F.; occasional dabbing of the prolapse with damp, chemically-clean surgical lint, whenever it protrudes, through the ring being removed for cleansing purposes. When it is, however, not a question of a mere sinking, but of a complete prolapse, then the bringing back into the vagina is absolutely necessary. The reposition often becomes very difficult, through the fact that the prolapse has increased in circumference, and has become hard. In the first place one must soften the prolapse and diminish it in size by the application of six stimulating compresses, which are, in accordance with the degree of inflammation, only slightly wrung out; then, after the bladder and the rectum have been emptied,

condemned to the wearing of a ring, at any rate to try the application of the natural means of cure given under the heading, "Women, Diseases of," and to do without this instrument of torture. "The injurious consequences of the wearing of pessaries," says Dr. Lahmann, the well-known Natural System physician, "are, however, so numerous, and in some circumstances so bad, that the malady they are meant to relieve is often, compared to them, a blessing." Not only are the parts of the vagina gradually so stretched as to give occasion to a sinking of the womb, not only may also the reflex nervous action of the sensitive nerves of the vagina cause disturbances in the vascular region which lead to palpitations of the heart, precordial anxiety, congestion of blood in the head, giddiness, bloodshot eyes, partial or total blindness, and the much-feared detachment of the retina, but also, if sufficient care be not used, the long-continued pressure of the ring may give rise to a perforation of the wall of the vagina, and the ring may pierce its way gradually into the bladder or the rectum, producing a bladder fistula or a rectal fistula into the vagina. Innumerable women, who are under treatment of doctors of all schools, have acquired through this kind of treatment severe general disturbances, worse than those from which they suffered at first; large numbers of them have acquired some nervous disease, or some disease of the eyes, for which neither they or the physician could account; but perhaps the worst result is that which has come to many sensitive natures, the terrible depression of spirits. The consciousness of always having to carry about with one an apparatus as a means against disease, keeps up a continual feeling of illness, and never allows one to be in a joyous frame of mind, and thus brings about gradually a morbid state.

one must try and replace it in the vagina, the patient reclining on her back with the legs drawn up towards the abdomen, and the buttock region raised by a pillow being placed under her. The prolapse is then seized with the well-oiled fingers of the left hand, somewhat softly pressed together, and then, with the aid of the well-oiled fingers of the right hand, pressed back upwards into the vagina in a diagonal direction, and pushed from before and from behind. If the womb has been replaced in this manner, then the ring, which has also been well-oiled, may be properly introduced into its place.

Last, but not least, is the Thure Brandt massage of the uterus, which, in the treatment of the sinking, falling, and prolapse of the womb, has proved so exceptionally advantageous. It is the procedure already described on p. 694 and 695. For reasons already mentioned on p. 690, I will again quote Dr. Freudenberg in this place, and especially concerning the manual treatment of prolapse.

"His (Thure Brandt's) treatment in case of prolapse or sinking is as follows," says Dr. Freudenberg: "After introductory gymnastic movements and beatings of the sacrum, the ventilations so often mentioned, that is to say, the raising of the womb by the surgeon with the assistance of his female assistant, is carried out, in quite a similar manner, but not quite in the same form, as in the case of a backward flexion of the womb. If these proceedings succeed in restoring the elasticity of the ligament which had been lost, then the so-called thigh closings will take care of the strengthening of the muscular foundation of the pelvis. The thigh closings are accomplished so that, while the patient is in a half-reclining, bent position, the attendant, with moderate force, forces the legs apart, which should be held bent, and the patient should, at the same time, cause resistance; then, again, the operator should cause a slight resistance when the patient attempts to close them. We have here a resisting movement of the highest value and effectiveness, and some of Brandt's pupils attribute to this movement the whole effectiveness of the treatment, which I only repeat here without expressing my own agreement with this view. I will only, in conclusion, advise the patient to perform the following exercise frequently—actively compress the anus, as if wishful of hindering forcibly an evacuation of the bowels, and then the chief means of cure have already been named. With quite old women, it is certainly no longer possible to restore

the elasticity of the muscular elements sufficiently for a prolapse to be held back, or to entirely remove a sinking, but with persons still within the years of sexual activity, it is possible, and almost certain, when other means of strengthening the general health are also resorted to, that a favourable result will follow this treatment."

Womb, Inflammation of the, Acute. — The same injurious influences which may produce catarrhal symptoms in the womb, may, under some circumstances, give rise to the inflammation of the tissues of its substance, whereby, at the same time, the mucous membrane of the cavity of the womb is also put into a more or less inflammatory condition. The causes of inflammation of the tissue may be the following incorrect conduct with regard to the health: Catching cold in the abdomen or in the feet, etc., during the monthly period; the sudden suppression of the latter; getting up too soon after a confinement, sexual intercourse too soon after a confinement, etc. In cases of acute inflammation the womb is found to be very much enlarged, especially in breadth, to the extent of the size of a hen's egg, and even more. The condition is characterised by the following general symptoms: At the beginning shivering fits alternating with flying heat, then fever, up to 105° F., and even higher; rapid pulse, coated tongue, sickness, pains in the iliac region and the groin, as well as over the pubic symphysis; constipation of the bowels, pains when passing water, and many other troubles. The duration of the acute inflammation is generally two or three weeks; a monthly period which is due during the time the inflammation lasts generally fails to set in.

The treatment of acute inflammation of the womb requires, in the first place, the fever treatment prescribed in Sec. 2, Part VI.

Locally, make use of sitz baths at from 82° to 90° F., of a duration of from ten to fifteen minutes, or trunk baths at from 82° to 86° F., of equal number during the day, and of the same duration. In the intervals, when the baths are not being taken, soothing iliac packs should be applied at from 77° to 82° F., or trunk packs (in which one has placed thick compresses) at from 73° to 77° F., over the abdominal region, from the navel downwards. In cases of violent pain, the application of vapour compresses to the abdomen should also be resorted to, as well as, in the case of acute catarrh

of the womb, the application of frequent washings-out of the vagina, at first at a temperature of from 86° to 90° F., and later on, at a temperature of from 82° to 86° F., in addition to laxative enemata to remove constipation, followed by a small cold enema. Rest in bed in a well-ventilated room, as well as a mild, non-stimulating diet (fever diet), are indicated under all circumstances.

Womb, Inflammation of the, Chronic, is developed analogously to a catarrhal affection, either from a neglected acute case, or it may arise independently. In this condition the womb is enlarged to three or four times its normal size, particularly in its longitudinal diameter. Catarrh of the mucous membrane and its ulceration are generally complications accompanying chronic inflammation. Women who have born many children, as well as chlorotic women, and those who suffer from poorness of blood, and cachectic individuals, have a special tendency to this form of disease. The more or less violent symptoms are as follows: Pressure, fulness and heaviness in the abdomen, especially when sitting, or after long standing or walking, as well pains which extend as far as the iliac region, the hips, the groin, and the thighs. The general symptoms show, according to the individual constitutions of the patients, the very varied picture of the disease of poverty of blood, of chlorosis, or of hysteria. Constipation of the bowels and difficulty in passing water are, as a rule, combined with these symptoms. External influences that cause pressure or shaking of the body (as, for instance, coughing, blowing the nose, violent sneezing, and also coition) generally cause an increase of the local troubles. Very often also, in consequence of the chronic costiveness, hemorrhoidal troubles also arise. At the beginning of a chronic inflammation the menstruation is generally very abundant, and lasts beyond the normal time. During the further course of the malady, menstruation diminishes both in quantity of flow and in the duration of the period. It is accompanied by attacks of pain, changes in the time of setting in, and, in very severe cases, is generally altogether absent. Barrenness is generally combined with the condition just described. If, however, in exceptional cases, pregnancy should arise, a miscarriage may generally be expected. Chronic inflammation of the womb is a most wearisome malady, and very often is not cured until the setting in of the change of life. The treatment must, in the first place, consist of the removal of the primary disease

and avoidance of all provocative causes, which are in part given under the heading of "Womb, Inflammation of the, Acute." For the rest, the rules of treatment given under the heading "Womb, Catarrh of the, Chronic," are also to be observed for the cure of chronic inflammation of the womb. Above all things, the rules for the General Strengthening or Tonic Treatment must be followed.

Womb, Inflammation of the Broad Ligaments of the, arises as a consequence of catching cold, of pressure on the ligaments produced by strong and excessive accumulations of excrement, or through tumours. It also arises from improper measures as regards the health in and after confinement, and in consequence of many other causes. It is characterised by more or less chronic pains in the groin, loins, and in the region of the thighs, which are increased by pressure, as well as by troubles in relation with the bowels and urine, constipation alternating with diarrhœa, sickness, vomiting, and fever up to 104° F., and even higher. The inflammatory process, complicated with the exudation of a serous fluid which generally flows out in the space between the rectum and the womb, but may also saturate other neighbouring organs, which frequently leads to a growing together of the affected organs, accompanied by their displacement from their normal position, resembles in many respects the symptoms of peritonitis (see under this head), and therefore requires the same treatment as this disease.

When inflammation of the ligaments of the womb runs a favourable course, it lasts as a rule from two-and-a-half to three weeks. If the condition, however—perhaps in consequence of improper treatment or neglect—is not cured, it becomes chronic. There arise in this case, at the menstrual period, violent tormenting pains at the base of the pelvis, which also extend to the loins and the hips, or there may arise an abscess, the discharges from which flow out into the neighbouring organs. In these cases the treatment must be adapted to the new form of the disease that has developed.

Womb, Narrowing of the; Metrostenosis, Closing of the Womb, Hydrometra, Dropsy of the Uterus.—The narrowing of the womb may be either a congenital or an acquired disease. The congenital narrowing of the womb, which first shows itself at the setting in of puberty, especially in young girls whose development is backward, is evidenced by the fact that the flow of blood is made difficult and scanty.

It has its site, without exception, at the outer orifice of the womb, whereas the acquired narrowing produced by chronic catarrhal affections, by displacements of the womb, by ulcerations of various kinds, etc., always attacks the inner orifice of the womb or the neck of the womb. A complete closing up of the womb very seldom happens indeed. It either results from some congenital abnormal formation, or through the formation of scars and the growing together through former ulcerations. The hindered flow of the menstrual blood caused by the narrowing of the womb leads to an accumulation thereof in the cavity of the womb, as a consequence of which there arise symptoms described under the heading of "Womb, Inflammation of the" (pp. 1525 to 1527). The congenital narrowing is very often cured through the influence of conception, pregnancy, or the act of birth, all of which tend to stretch the womb. The acquired narrowing of the womb causes, so long as the woman still menstruates, an accumulation of blood in the cavity of the womb, whereby both the flow of menstrual blood and conception are made more difficult. If, however, the narrowing arises after the matron age, and after the cessation of the periods, and indeed, as I may here repeat, generally in consequence of chronic catarrhs or of displacements of the womb, as, for instance, through great flexions, etc., with which there is, as a rule, combined a mucous discharge from the catarrhally-affected mucous membrane of the cavity of the womb, then this mucus accumulates in the cavity, enlarges the walls of the cavity, and gradually so changes their structure that the secreting glands disappear. As a consequence, no more mucus is secreted and accumulated in the cavity, but in its place a serous fluid, and a condition arises which is known as dropsy of the womb. It is also not uncommon for the accumulation of blood in the cavity of the womb to be caused by a closing of the vagina. The cavity may then, in consequence of the closing of the vagina or of the orifice of the womb, be so considerably enlarged that the patient acquires the appearance of a pregnant woman during the last months of pregnancy. In consequence of the very manifold forms in which the diseases of the female sexual organs show themselves, it is not always easy to recognise a narrowing as such. At the same time when, in the case of young girls, in place of the menstrual period, which has not set in at the interval of twenty-eight days, there are in most cases several days of lasting attacks of colic in the womb, one may

generally assume that there is a narrowing. The same symptoms arise in cases of acquired narrowing, where women and girls have formerly menstruated regularly. With these symptoms are associated, in the intervals between the former menstruations, such general symptoms as pressure, heaviness and fulness in the abdomen, pains in the back and loins, constipation and difficulty in passing water, congestion of the head, palpitation of the heart, etc. The womb swells up so that it can be felt from above the symphysis pubis, sometimes as far as the navel. In the further course of the disease the patients become emaciated, and unless the disease is cured by proper treatment, it may very easily take a fatal termination through the bursting of the walls of the womb and the setting in of peritonitis.

The dropsy of the womb which I have mentioned above generally arises in a more moderate degree, and is accompanied by similar general symptoms to those which accompany a narrowing of the womb.

The treatment of the diseases of the womb mentioned in this article requires, in the first place, the General Strengthening or Tonic Treatment. At the same time, the rules for Treatment given under the heading of "Womb, Catarrh of the, Acute," should also be applied. In cases of narrowing of the womb, massage of the pelvis, in combination with methodical bodily exercises and movements (Cycle of Movements No. 4 or No. 5 of the Simple Active Movements of the Health Gymnastics, or the Passive Movements thereof, Figs. 199 and 205 to 207), are of the greatest possible advantage.

The closure of the womb, which owes its origin to a congenital defect of formation, requires a surgical operation for its cure. When, however, the closure of the womb arises from a growing together, or a scar following upon ulceration, the patient should be subjected to a thorough massage of the pelvis, in combination with the corresponding gymnastic health exercises. In cases of long standing, however, surgical operation is also necessary.

The cure of dropsy of the womb requires the removal of the primary disease.

Womb, Tumours in the; New Growths; Fibroids; Cancer.—New growths or tumours in the womb have their site in the substance of the organ itself, as well as in its mucous membrane. Fibroids or fibrous tumours are developed from the substance of the walls of the womb. In size they

vary between that of a pea and that of a child's head. They are easily formed in women between the ages of thirty-five and fifty-five; they vary in form and in size. Sometimes they are in considerable number, and are found almost always on the fundus or base of the womb, where they either harden or become inflamed, suppurate, and then fall away from the womb. Several small fibroids, or one large tumour, will press the womb out of its natural position, and cause pressure upon the neighbouring organs, and injury to them. The symptoms which show the presence of fibroids vary very largely, according to the individual constitution of the patient.

Characteristic of the existence of new growths of this kind is an abundant, irregular, and frequently repeated menstruation, in which the blood is mixed with clots, and the flow of blood is temporarily alternated or varied with the excretion of a thick blood-coloured mucus, and by distressing and violent pains in the back and loins. Constipation of the bowels, difficulty in passing water, the formation of hemorrhoidal knots, congestion of blood in the head, headaches, palpitations of the heart, neuralgia, pains in various parts of the body, emaciation, paleness of the face, a debilitated appearance, weakness of the muscles, dropsical swellings of the legs and feet, formication in them, depression of spirits, etc. These, as a rule, represent the general symptoms.

The treatment of fibroids of the womb is the same as that of chronic catarrh of the womb. (See under this head.) The prescriptions of the General Strengthening or Tonic Treatment are to be exactly followed. In the case of patients of a strong constitution, one should apply a lowering treatment; the application of massage of the pelvis, according to Thure Brandt, has also a very beneficial effect. The patient must, however, make up her mind to a treatment that will last a very long time, according to either methods, even when a complete disappearance of the fibroids does not result, they are at least diminished in size, and an improvement in the general health takes place.

When it is a question of pronounced formation of polypi, which are divided into two classes, fibrous polypi and mucous polypi, then the same kind of treatment is to be applied. For the natural history of polypi the following facts may be sufficient: Fibrous polypi are nothing but fibroids provided with a stem. They are developed in the same way as are the fibroids proper. The round broad tumours are

without a stem; the true polypi, mucous polypi, show a proliferation of the mucous membrane of the cavity of the womb; they generally only attain the size of a hazel nut, and show a cone-shaped, or longish, round, pear-shaped appearance, and possess a tolerably thick pedicle or stalk; the polypi grow and multiply in many cases as far as into the vagina. The general symptoms, when polypi are present, are, as a rule, the same as where there are fibroids.

Cancer of the womb is a disease the frequent occurrence of which causes it to be greatly feared by women. The cancer is sometimes hardened and knotty in its constitution, sometimes fibrous and sometimes soft, and like medullary cancer. Cancer of the womb is, as a rule, of the structure of medullary cancer, a fibroid mass saturated with a milky moisture. It commences in the vaginal parts of the neck of the womb on one of the two lips of the orifice of the womb, and commences to develop in the form of a knotty swelling, which then, in a short time, changes into a discoloured, devouring ulcer, and discharges a mattery, irritating fluid of peculiar and very penetrating smell. The cancer's proliferation only very seldom spreads to the upper portions of the womb, it gradually proceeds from the vaginal portion of the womb to the bladder and to the rectum, where, by the formation of fistulæ, it develops a destructive activity. Young persons are very seldom attacked by cancer in the womb, which seldom arises in women under twenty-eight years of age. Cancer most often affects women between the ages of forty and fifty-five. Bad composition of the humours of the body, very frequent confinements, barrenness, sexual excesses, mental anxieties of long duration, such as grief, troubles, etc., favour the outbreak of uterine cancers; heredity also plays an important part in this terrible affliction. In addition to the above-mentioned symptoms, discharge of an irritating and evil-smelling fluid, the following symptoms are characteristic of a cancerous affection of the womb: Violent pains and excessive bleeding, together with disturbed monthly periods; excessively tormenting, tearing, and drawing pains in the back, the groin, the loins, and the region of the pubes and the womb; coition becomes impossible, on account of the frightful pains which result, and walking and standing likewise become very painful. Menstruation sets in with comparative regularity at the beginning of the trouble; it is, however, combined with excessive hemorrhage. This does not last long, and

soon there come on excessive hemorrhages between the periods. They are characterised, as consequences of the cancer, especially by discharge of a slimy, serous fluid which accompanies them, and is of an orange-coloured appearance, has an extremely bad smell, and is of an ichorous and irritating composition. General symptoms are constipation of the bowels alternating with diarrhœa, great difficulty in passing water, disturbance of nutrition (emaciation, weakness of the blood, general weakness, etc.), sickness, neuralgic pains, etc.

A cure of cancer of the womb is practically impossible, even the Natural Curative Treatment is here met with a non-possumus. If the patient has not yet sunk too low, she should, for a conversion of the circulation of the blood and its constitution, adopt a course of General Strengthening or Tonic Treatment, or a mild and modified lowering cure, for the relief of the troubles; sitz baths, or night-stool vapours, or vapour compresses at from 86° to 90° F., may be used, as also syringings of the vagina with water at 90° F., and laxative enemata at 86° F.

One must distinguish between true cancer of the womb and a proliferation of the papillæ of the mucous membrane, on the vaginal portion of the womb, which is called "a cauliflower growth," and, indeed, shows almost exactly the same local and general symptoms as cancer, but is curable. The treatment consists, in the first place, in the application of the General Strengthening or Tonic Treatment, then, after the lapse of a few weeks, of the gradual introduction of a lowering treatment. In the application of the tonic treatment one should follow the instructions given for treatment under the heading, "Womb, Catarrh of the, Chronic."

Womb, Neuralgia of the, is, as a rule, the consequence of a general nervous condition; sometimes it is an accompanying condition of hysteria or chlorosis, and vanishes with the disappearance of the primary disease. The malady is recognised by the arising of pains in the lower part of the pelvis, that reach as far as the region of the loins, and are increased by walking, standing and sitting, and diminished by lying down, and which produce especially a very painful sensitiveness in the vagina. The disease is obstinate, and often lasts for years. The treatment must be directed to the removal of the primary disease, as local palliative means to relieve the pain, vapour compresses, sitz vapour baths, and warm sitz baths, etc., are of much use.

Plate IX.*

Fig. 1. Prolapse of the womb (perpendicular section).

- | | |
|--|-----------------------------|
| a. Spine and coccyx. | f. Bladder. |
| b. Rectum. | g. Prepuce. |
| c. Perinæum. | h. Body and base of womb, |
| d. Thickened vaginal posterior
wall, falling forward. | slightly forward direction. |
| e. Vaginal anterior wall, turned. | i. Ovary and oviduct. |
-

Fig. 2. Prolapse of the womb of a more severe nature.

- | | |
|--|-------------------------------------|
| a. Spine and coccyx. | f. Anterior wall of vagina, turned. |
| b. Rectum. | g. Bladder, divided into two com- |
| c. Perinæum. | partments, through prolapse |
| d. Posterior wall of vagina, falling
forward. | of womb. |
| e. Womb, falling forward. | h. Prepuce. |
| | i. Ovary. |
-

Fig. 3. Prolapse of the womb, anterior view.

- | | |
|---------------------------------|------------------------------------|
| a. External opening of the ure- | b. Anterior wall of vagina, turned |
| thral canal. | c. Mouth of the womb. |
-

Fig. 4. Cancer of the womb and vagina.

- | | |
|---|-------------------------------|
| a. Body of the womb, cut. | c. Thickening of the bladder. |
| b. Cancer of the anterior and
posterior walls of the womb. | d. Vagina. |

* Full explanation will be found on pp. 1519 to 1524 and pp. 1529 to 1532 under "Diseases of Women."



Fig. 1.



Fig. 2.



Fig. 3.

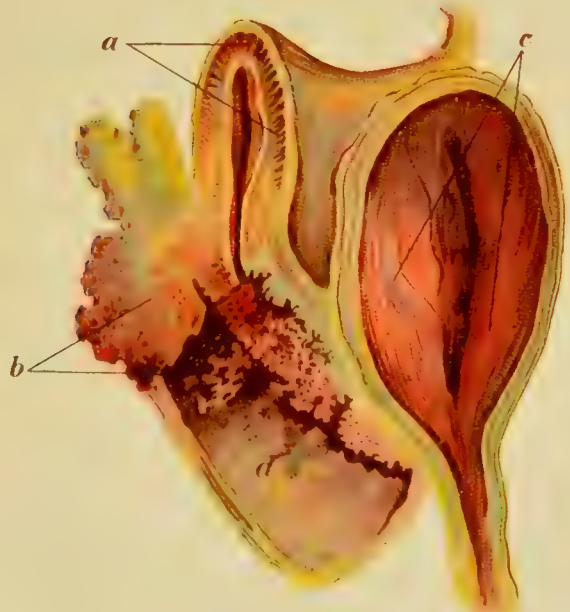


Fig. 4.

Womb (Uterine) Speculum. — The uterine mirror is a funnel-formed glass, metal, or porcelain instrument, of different lengths and diameter, for the inspection of the female vagina, and the vaginal portion of the uterine neck (Fig. 431). Its application can only take place in those cases where the natural obstruction of the hymen is not in the way. This mirror is constructed for the purpose of opening and lighting the interior of the vagina, to admit of ocular inspection. The introduction of the instrument takes place by slight pressure, and is therefore painless.

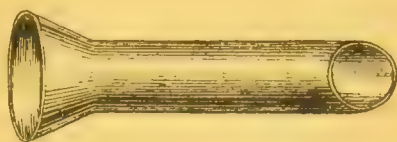


Fig. 431. Uterine Speculum.

Worm, the Round (*Ascaris Lumbricoides*). — This worm is an inhabitant of the human intestines, especially of the blind dilatation called the cæcum. These worms are from four to five inches in length, and occasion very little uneasiness.

The remedies for their removal are identical with those given under the heading of "The Maw, or Thread Worm (*Ascaris*)."

Worms. (See "Maggots," "Tapeworm," etc.)

Wounds. — Forcible separation of the living tissues of the body, of which the cause is mechanical, is called a wound. The separation of the hard part of the body is called bone fracture. Wounds may be of different kinds, according to their nature. Thus, there are wounds that were caused by a blow, a cut, a stab, a tear, a shot, a burn, and pressure. The seriousness of a wound depends on its size and depth, and on the importance of the organ or part of the body that is wounded. Stabs and shot wounds are mostly very dangerous, partly because some important inner organ may be wounded by the bullet or point, and partly because foreign bodies, such as bullets, bone splinters, bits of cloth, etc., may penetrate into the wound. Every wound is accompanied by pain, but the latter depends on the size and depth of the wound, on the smaller or larger amount of tissue that is separated, and on the amount of bleeding.

Wounds are treated in two ways. The cure takes place either through a uniting and keeping together of the separated parts through a sticky substance, but without suppuration (per primam intentionem), till only a thin scar remains; or through the slow process of suppuration. This healing is accompanied

with granulations (proud flesh), till at last a wide red scar remains (*per secundam intentionem*). As a rule only clean cuts heal quickly of which the edges are close together, and are not separated again through fresh bleeding, or a secretion from the wound, and when it has rest and is protected from outer injurious influences. Above all, one should be careful that no dirt, dust, etc., enters the wound, and thus any infection may be avoided. All wounds that do not receive the above proper care heal by the process of suppuration, these being principally caused by shot, laceration, stabs and pressure; and others by which too much substance was lost, so that the edges were from the first too far apart or crushed for a favourable union. Wounds in which a foreign matter has entered which cannot at first get out at all, or only with the help of cutting and pulling, whereby some substance is lost and the wound irritated, must go through the process of suppuration. Now it is very important (this applies to every kind of wound) to keep the part protected against dirt and infectious matter (bacteria), of which there is a great deal about. Every wound, be it ever so small, is liable to offer an entrance for some infectious matter, which not only causes suppuration and inflammation of the wound, but also of the neighbouring lymphatic vessels, which may lead to a general blood poisoning (purulent fever, *pyæmia*), *erysipelas*, tetanus, etc. For when there is a separation or a tearing of the tissues, lymphatic glands are injured and opened, as well as blood vessels; these absorb the infection and carry it further in the body. Therefore any uncleanness of the wound may cause this diseased state, from which an increased suppuration would result. Those infectious matters that possess septic properties to a high degree, and that are capable of causing a decomposition of organic albuminous substances, are called septic bacteria. In order to destroy these minute organisms, and thus keep the wound healthy, doctors, as a rule, use some antiseptic remedy. (There are several hundreds of these, *comp. I.*, Chap. 31, p. 351.) The doctors of the Natural Treatment only recognise one antiseptic, and that is cleanliness. The most scrupulous cleanliness should be observed with regard to the wound, its surroundings, and the hands that touch it.

As regards the treatment of the wound, one should not apply to it either dirty linen or lint, nor a sponge, but try to stop the hemorrhage in the manner indicated in the article on "Bleeding." When this is over, clean the wound (in

case it is not clean) with water of about 68° to 72° F., which should first have been boiled and then allowed to cool. (Comp. the note on p. 914.) The fingers must previously have been washed very scrupulously with soap, warm water, and a nail-brush, so that no dirt adheres to the nails. The cleansing of the wound should be either in the shape of a washing or syringing, with the help of an irrigator or of a wound syringe, or else in the shape of a washing with clean soft linen or chemically-pure lint. If the wound is covered with a layer of partly-dried blood, one should not—this is of the greatest importance—take off the dried blood, because this may cause fresh bleeding. Very large and deep wounds, especially in the face, often require to be sewn up, but this will be the work of a surgeon. One should place on the wound (whether it is sewn up or not) chemically-pure lint, or a piece of linen that has been folded from two to four times (this piece should be very clean and soft). These bandages should first have been moistened in water of 72° F. (which has been boiled and allowed to cool), and must be well wrung out. On the top of this apply a thick, loosely wrung out compress of from 68° to 72° F. The bandage just mentioned should be placed in water which has been boiled, and be made secure with a clean, dry linen outer bandage. (Comp. the article "Bandage.") The damp bandage must also cover the surroundings of the wound. When applying the bandage, take care that the edges of the wound are close together, which will lead to the wound's healing quickly. The bandage should remain forty-eight hours without being moved. If violent pains in the wound and its surroundings set in, carefully renew the thick upper bandage, but not the bandage that remains on the wound; this should not be moved, so, when the wound is occasionally bathed in 68° to 72° F. water, the wound and bandage are bathed together. The bathing should continue till the pain has subsided. During the cold season the bathed part must be well dried and wrapped in flannel.

One may also use compresses of from 64° to 68° F., when the wound is either in the upper arm, fore-arm, wrist, or upper thighs. The wounded part of the body should have a high position, in order to lessen the flow of blood and lymph. After forty-eight hours, one may at least take off the bandage to see the condition of the wound. If the wound seems to be healing quickly, renew the bandage, which may remain there till it is healed.

If there are pains and heat in the wound, bathe it together with the lower bandage. But if suppuration has set in, or will soon set in, cover the wound with a thin layer of chemically-pure lint; this should be well wrung in water of 72° F., which has been boiled and cooled. Over this, during the day, put a double piece of linen, and during the night a four-fold piece of linen or lint, on the wound, and surround these bandages with flannel or wool. This bandage should be changed every day five to six times, the lint on the wound being renewed each time; the other bandage should only be changed when wet. When the bandage is changed, gently clear the pus from the wound (in case any wadding sticks to the wound, it should be moistened with water at 77° to 81° F.) with damp wadding of 72° F., the wound being dried with dry lint. This must be done quickly, so that little of the outer air can get at it. When there is very much suppuration, another thick bandage is required, together with that just mentioned. If much proud flesh is formed, it should be syringed with 50° to 60° F. water. The wound may be bathed twice daily (the bandage being taken off) with water of 68° to 72° F. One should massage, in a mild manner, the region over the wound, towards the centre. Older, neglected wounds, require the so-called tension bandage to be applied. (See p. 513.) As regards the change of the inner bandages, they should be damped, as already mentioned, as the degree of the dampness has a great influence on the feeling of the patient as well as on the wounds. In no case should ice be used. The patient will also probably never desire it. Sticking-plaster must never be used, as it irritates and soils the wounds. In order to obtain a quick healing of wounds, a strict diet must be observed. It should be of a mild, cooling, vegetarian order. The time of healing depends greatly on the state of the blood and humours of the body, and only clean vegetable substances produce healthy blood. Every wound causes the organ's sympathy with it, and assistance in the healing process. Thus the blood is forced to the affected place in order to help in the closing of the wounds. This rapid circulation of the blood is the cause of the wound fever setting in. The severity of the wound fever depends to a certain degree on the constitution and age of the individual, and also on the seriousness of the wound and part of the body where it is situated. In order to abate the fever, use 77° to 81° F. spongings of the whole body, mild trunk and

sitz baths, emollient enemas, combined with other gentle means. (Comp. articles on "Bleeding," "Blood Poisoning," "Abscess," "Inflammation," "Bandage" and "Burns," as well as Part II., Sec. I., Chap. 24, "Compresses for Individual Parts of the body.")

Wound Cramp. (See "Lockjaw.")

Wound Erysipelas. (See "Erysipelas.")

Wound Fever. (See "Wounds.")

Wrap, the Short. (See Kneipp's System.)

Wrappings, Damp. (See "Packs, Damp.")

Wrappings, Dry. (See "Packs, Dry.")

Writer's Cramp; Finger Cramp. — In these days of much writing, writer's cramp is a very frequent complaint. The cramp of only certain muscles, and specially the flexor muscles of the thumb, or of a much-used finger, can be brought on by other occupations. Pianists, organists, cello players, violinists, flautists, harpists, zither players, telegraphists, kr.itters, seamstresses, weavers, tailors, etc., suffer from cramp, which is a consequence of delicate work by hands or fingers with which nature cannot keep pace. The cramp first appears when the affected muscles are approaching perfection in their destined work. In writing, or any other quick and repeated act, one of the fingers, generally a much-used right-hand finger, fails as regards flexion, and the sufferer is quite unable to carry out his will in that particular muscle; or it may happen that the will-power is suddenly suspended, when there are convulsive sympathetic movements in the other fingers. When an effort to write is made, the cramp has seized the thumb, and it can no longer hold or guide the pen properly. In a more advanced stage the other fingers of the right hand are seized with cramp, so that any attempt to write brings on stiffness and a paralyzed feeling of the whole hand. Or the fingers are drawn up stiffly, and drag the penholder along. The trouble originates in a disturbance of the usual co-operation between the muscles. They have usually been overstrained for a long time. Their action is quite unimpeded by any other use of the fingers. It is a very remarkable fact that women never suffer from this cramp, though, as far as writing and piano playing are concerned, they are far in advance of men. The complaint is difficult to cure, and may be life-long if the patient is not able to give up writing, and other delicate hand motions, for some time. Writing with the left hand only increases the mischief,

because the twin nerves that go out from the spinal marrow work equally on both sides, especially on the hands and fingers, and carry the trouble to the left hand. A cure is somewhat exceptional.

The treatment requires the setting aside of the writing or other delicate work for some months at least. In slight cases, taking entire rest at intervals is very beneficial. It is advisable to adopt the General Strengthening Treatment, not forgetting to give massage and curative gymnastics an important place.

To prevent possible inflammation in the hand, to stimulate the sluggish blood and lymph, and to secure better circulation in the fore-arm, undergo massage of the arm, hand and fingers (p. 702), in conjunction with the specified flexion and extension (Fig. 212), and Course No. 9 of the Simple Active Movements in Curative Gymnastics. Above all, practise frequently the movements illustrated by Figs. 244, 245.

Frederick Mager, the best-known practitioner of the Gymnastic Treatment, recommends, instead of the manual massage, beating hand and fore-arm with his own invention, the muscle-beater, then stroking the fingers and hand with a "Finger-roller," and the fingers, side of the hand and fore-arm with the concave roller, and the palm and back with the ball fixed on the other end of the "Finger-roller." All these operations should be centripetal, and should last from three to five minutes. Begin by stroking gently, increase the pressure, decrease again, and stop, as you began, with gentle passes. Great patience is necessary in applying the massage and gymnastics.

In a protracted case, the result of treatment would not be apparent until four to six months had elapsed. The longer the mischief has existed, the longer will recovery take. As a help to the massage, the application at night of packs to arm and hand, 73° to 77° F., and of Kneipp's affusion to the arm, are highly recommended.

Y.

Yellow Fever.—Yellow fever, which greatly resembles typhus in its symptoms, is an illness that does not occur in these latitudes, but only as an epidemic in the tropics, especially on the coasts and river banks. The patient at the commencement of the illness feels weak and heavy; suddenly

fever sets in, rising to 104° to 106° F., and even higher. The ordinary febrile symptoms, severe shivering alternating with great heat, quick pulse, loss of appetite, excessive thirst, apprehensiveness, restlessness, depression, etc., are increased by a characteristic terrible headache over the brow, and great pains in the back, loins and thighs. In some cases he has to endure pains in the stomach and the cardiac regions. Vomiting of the administered food and of mucus is always present in the early stage. In fatal cases, after two or three days' sickness, a diminution of the disorder sets in, so that the patient believes in a speedy recovery. But it merely indicates the "beginning of the end," and the setting in of the torpid fever. At the beginning of this relapse the pulse goes down to from forty to fifty beats a minute, the skin of the entire body assumes a yellow tint; vomiting of mucus, first transparent, but later bloody, chocolate-coloured, sets in; the skin becomes quite cold; the features are drawn, and display a markedly sunken expression; the pulse drops to thirty beats, and death ensues in convulsive form. In a favourable case, at the end of six to eight days, the symptoms subside, the fever lowers and stops, but convalescence lasts for weary weeks, even months.

The treatment is found in Part II., Sec. VI., "Directions for the Treatment of Fever."



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Printed by Breitkopf and Härtel, Leipzig.





